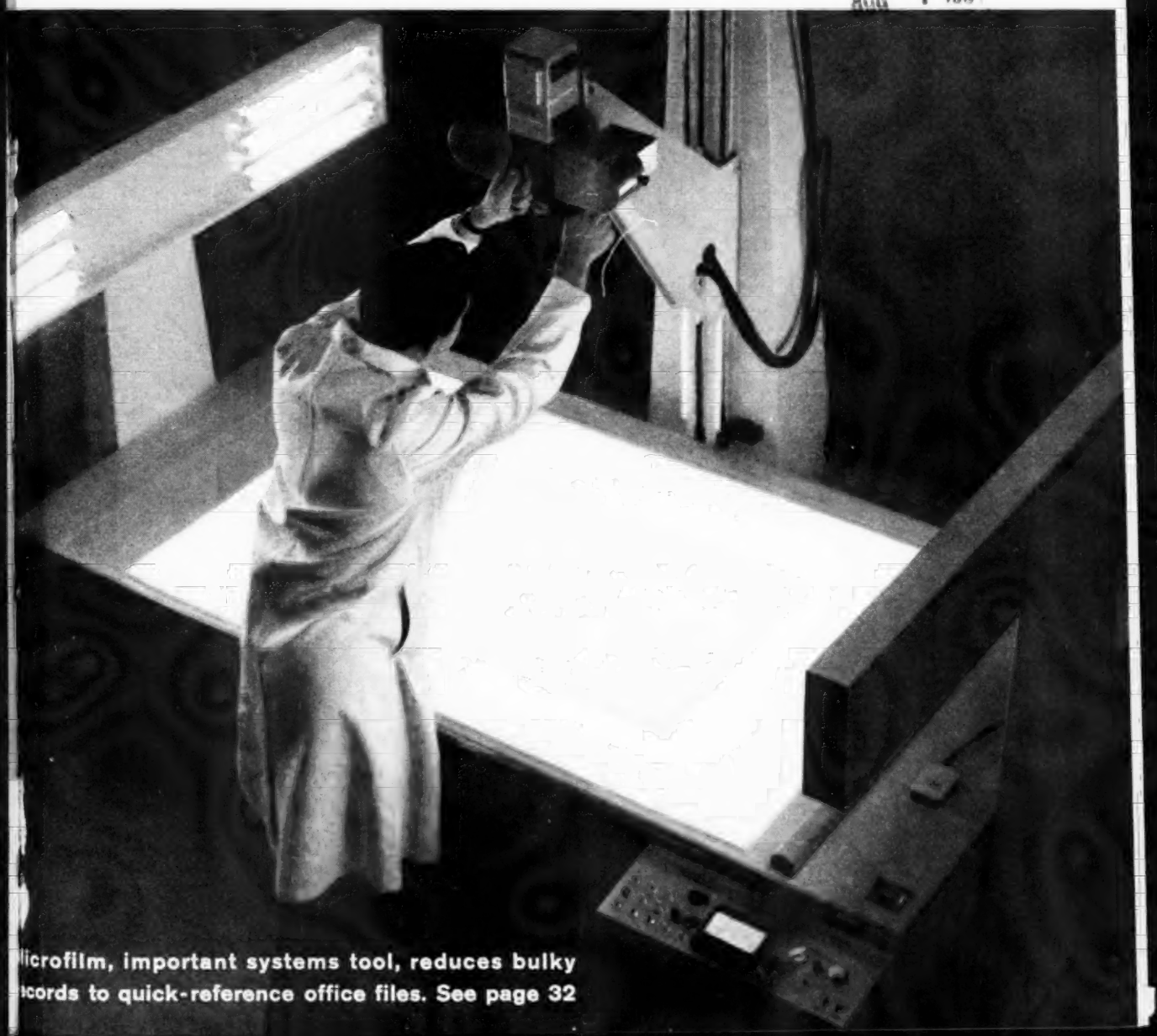
AUGUST 1961

Administrative Management

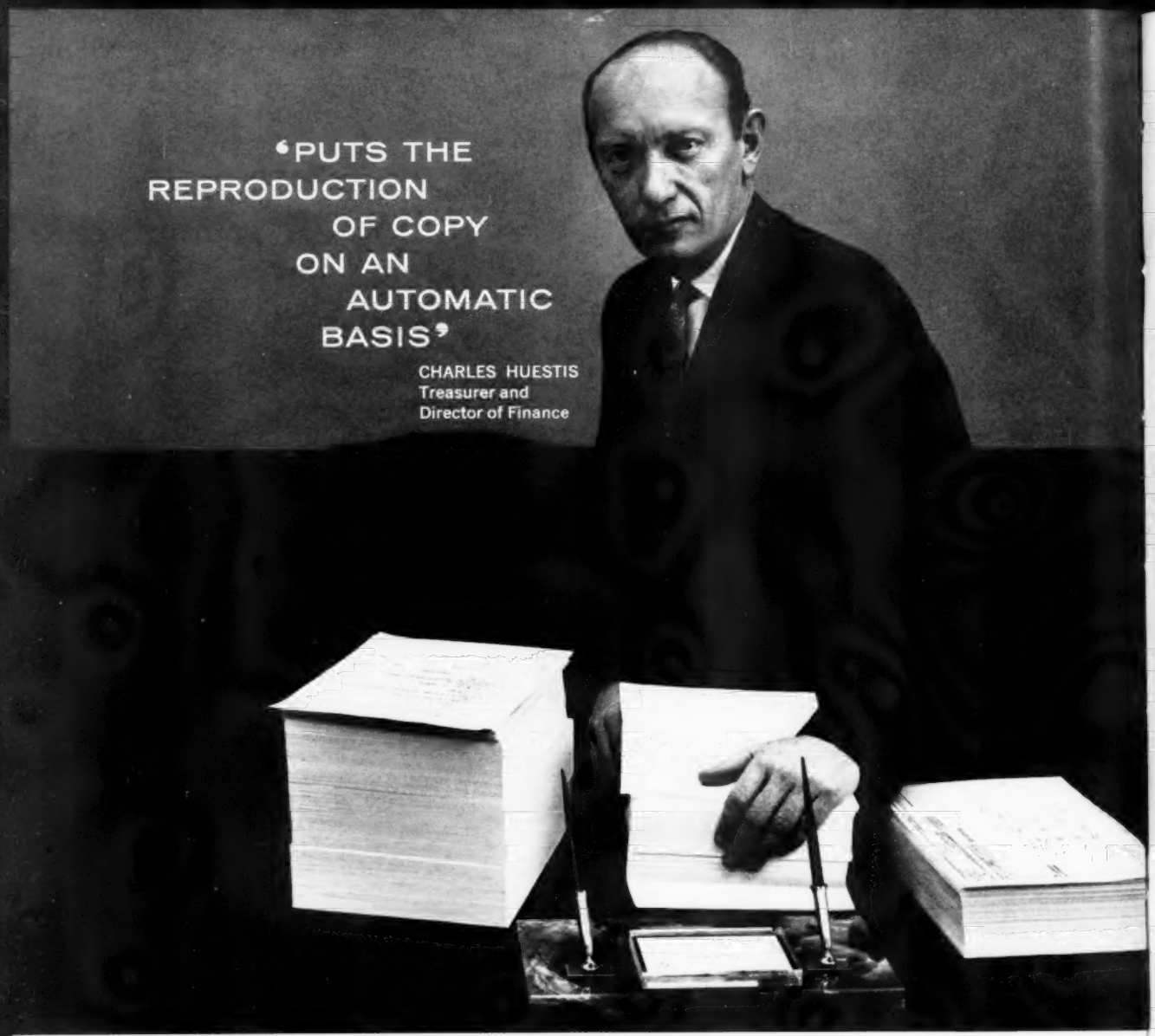
Formerly OFFICE MANAGEMENT AND AMERICAN BUSINESS

Delegating the administration of salaries – How? And to whom? . . . p. 13
The management game – straight talk on the race to reach the top . . . p. 18
Automatic programming: "The Second Computer Revolution" . . . . . p. 24

AUG 7 1961



Microfilm, important systems tool, reduces bulky records to quick-reference office files. See page 32



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Administrative Management

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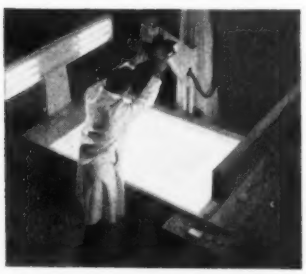

Microfilm is used to record all size business records from checks to large engineering drawings like the one shown on our cover. The camera in the photo is Keuffel & Esser's Micro-Master model. For a survey of the latest microfilming equipment, see "Tools of the Office," page 32.

August, 1961
Volume XXII, Number 8

FEATURES

Delegate salary administration
A practical way for top management to control, but not perform wage program details
By Robert R. Doberstein **13**

Winning and losing at the management game
Some straight talk on administrative ethics
By Ray E. Brown **18**

The second automation revolution
Now, simple words can generate computer instructions
By Eric N. Grubinger **24**

That union steward!
He can be a bane or blessing—much depends on you
By Barbara A. Dooley and Charles W. Phillips **30**

Schools can save space with microfilm
How microfilm saves time and space in record-keeping operations
By James W. Carruth **48**

Invest in systems men for quick returns
Streamline your routine office procedures
By John Hockman **52**

How to hold a conference
Do you know the fundamentals? Check yourself!
By Robley D. Stevens **62**

DEPARTMENTS

Tools of the office series: Microfilm
By Lawrence Victor **32**

Office design: Business libraries
By John M. Sine **54**

Automation in the office **64**

Editorial **80**

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AMemo

Short thoughts on big and little topics in management's domain

Employee health programs benefit companies, too

In-plant medical services paid for by a company to protect and maintain the health of its employees should be entered on the profit side of the ledger at the end of each year, according to the results of a recent survey of 171 industrial firms by the Bureau of National Affairs, Inc. Ninety per cent of the firms indicated that health education and consultation, periodic examinations, and emergency care provided by companies lead to lower absentee rates, fewer occupational accidents, and improved employee morale.

This applies to small businesses, as well as large ones. The Small Business Administration reports that the disabling injury rate in small firms runs two and a half times higher than in large organizations and that absenteeism attributed to illness is also higher in small businesses. One way for a small organization to operate a successful employee health program at a minimum cost is to hire the part-time services of a doctor-nurse team who also work for other firms and are acquainted with in-plant conditions and problems.

We're not the only ones moving to Suburbia

The French, who measure almost everything in terms of the individual, have come up with a catalogue of the personal reactions of administrative and high-level technical personnel whose companies have moved from Paris to the provinces, or as we might say here in the United States, *from the big city to the suburbs*. The French Association for Increased Productivity, which conducted the interviews, found that many who were forced to move to the provinces liked the idea of the outdoor environment, the peaceful atmosphere—both day and night, better housing and working conditions, and the healthy climate for children. However, on the negative side, many people expressed discontent with exactly the same conditions. To the dissatisfied, "the peaceful atmosphere" meant solitude and lack of cultural activity, "better housing" meant higher rents, etc.

The anti-suburbia group also felt that their remoteness from Paris, the principal employment market, shackled them to their companies by making it difficult to search for a better position and expensive to relocate their families in the event they did change jobs.

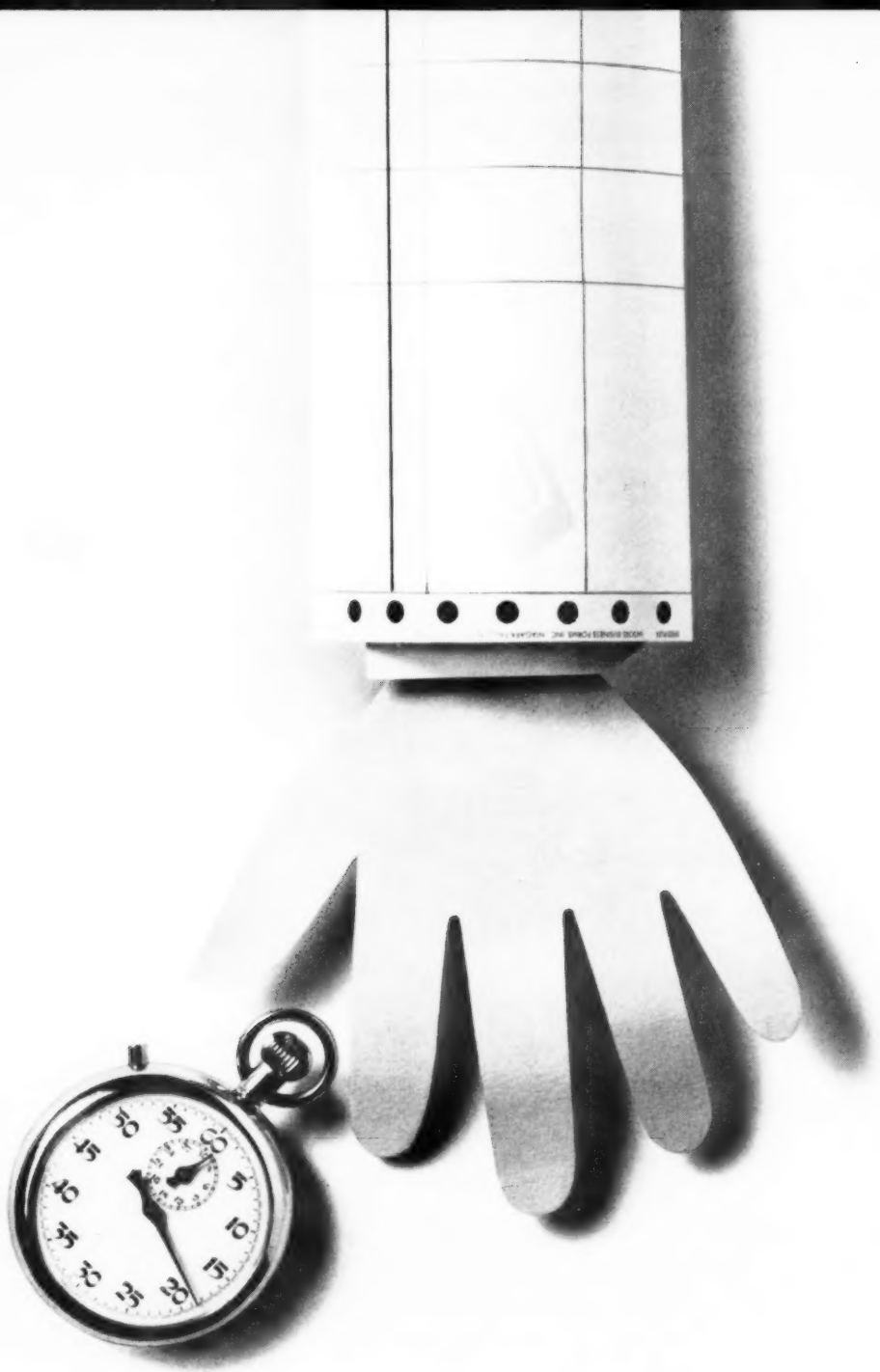
Unemployment insurance going up

Well over 100 changes in state unemployment insurance laws have been enacted since the first of the year, relates the Commerce Clearing House of Chicago, publishers of authoritative reports on tax and business law. Specifically, 12 states have raised jobless benefits. They are: Hawaii, Idaho, Illinois, Maine, Maryland, Missouri, Montana, New Jersey, North Dakota, Oklahoma, South Carolina, and West Virginia. In addition, new federal legislation passed since January 1 provides for temporary extended unemployment insurance benefits under the Social Security program.

Everyone's talking about EDP

The question of data processing nomenclature is being attacked from all sides. The Engineers Joint Council here in the United States has formed a committee to create common names applicable to various systems of computation, regardless of machine makes or sizes. Across the Atlantic this June, in Turin, Italy, 50 delegates from 10 different countries, including the United States, met to set up plans for standardizing office machines. One of their projects will be to establish a multilingual glossary of data processing terms, with appropriate abbreviations and symbols.

(Circle No. 23 on Reader Inquiry Card)



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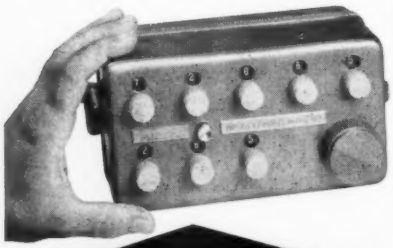

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(Circle No. 18 on Reader Inquiry Card)

With the Editors of AM

EUPHEMISMS, ANYONE?

GOOD communications, as all good administrators know, depend not only on brevity, but on common understanding of the precise meanings of various words and phrases.

The subject of brevity would take far too long to adequately cover here. But as an aid to busy executives, our research department has attempted to de-euphemize, and maybe de-emphasize, some words and phrases which have been rather loosely applied.

We hope you find their efforts to arrive at *real meanings* helpful, however cold and cynical—er, clinical—the results might be. Here goes:

Attitude of Watchful Waiting — *A good way of doing nothing, with dignity.*
Before Taxes — *Wishful thinking, but let's indulge in the daydream anyway.*
Calculated Risk — *Crap shooting on the corporate level.*
Deferred Compensation — *Gone today but here tomorrow.*
Diversification — *Out of the frying pan and into the fire.*
Forward-Looking — *I've got no way to justify this on the basis of past experience.*
In Due Course — *When I get around to it.*
Joint Venture — *Marriage, without love.*
Management Prerogative — *Lunch from twelve to three.*
Merger — *A form of musical chairs in which one or more executives is left without a seat.*
Policy — *A handy substitute for good judgment.*
Promotion From Within — *A system of moving incompetents to the policy-making level where they can't foul up operations.*
Taking a Long, Hard Look — *I just can't seem to make up my mind.*
Taking Forceful Action — *Doing something which should have been done long ago.*
Under Consideration — *It's in that stack of papers on my desk.*
Well-Rounded Program — *There's a little something in it for everybody just to keep them all happy.*

To be serious a moment, we thank the anonymous author, who with twinkle obviously in eye, suggested these to us. Other such forward-looking pieces of research are under consideration. Perhaps we shall make use of them, in due course. . . .

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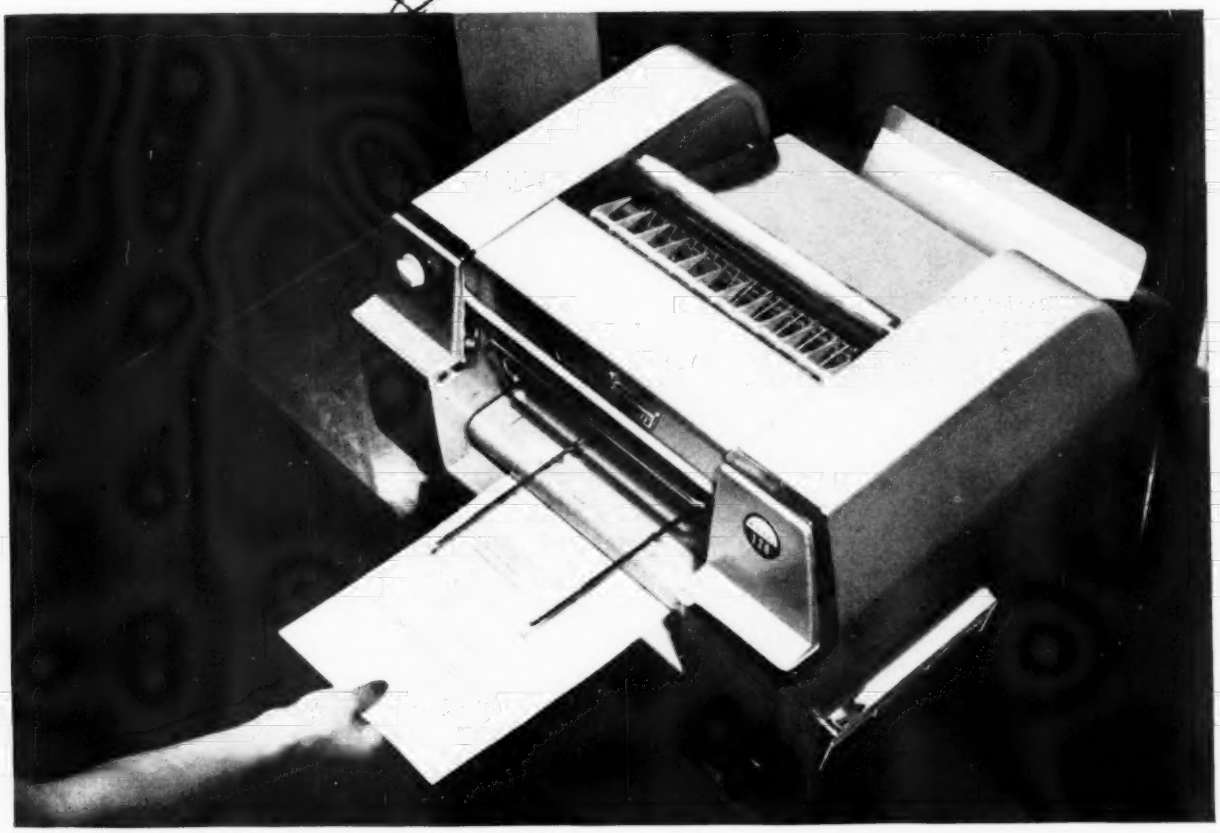

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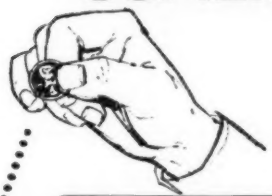

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(Circle No. 7 on Reader Inquiry Card)

Letters to AM

To the editor:

The Hoover Commission report pointed out many areas of government in which waste was rampant, with bureau pyramided on bureau to build empires for bureaucrats, but the Larston Farrar interview with Seymour Wolfbein (*"Kennedy's Automation Doctor," June AM*) would indicate that little was accomplished through the Commission's final recommendations.

Dr. Wolfbein declares he has no taste for "empire building" and indicates he will coordinate the work of Leon Greenberg—Division of Productivity and Technological Development, the Bureau of Apprenticeship and Training, the Bureau of Labor Statistics, the Division of Manpower, and the Bureau of Employment Security, in addition to "the enormous information-gathering facilities of the Department of Labor." He didn't mention the Bureau of Labor Standards, the Bureau of Employees' Compensation, and other bureaus under Secretary of Labor Arthur Goldberg. He might also get help from the many bureaus under other Cabinet Secretaries, such as the Department of Health, Education and Welfare's Office of Education and Office of Vocational Rehabilitation, to mention a couple.

There are many more divisions, bureaus, departments and offices that, it would seem, might have done or should have been doing some study on automation's impact, if it were necessary that such a job be done by a federal government agency in the first place. But, having been with the Department of Labor since 1942, Mr. Wolfbein apparently appealed to Secretary Goldberg as a man after his own heart and was thus awarded with the new title of "Director" of the latest bureau—the Office of Automation and Manpower.

Dr. Wolfbein, cloistered in the Department of Labor and having associated closely with labor leaders for so long—as evidenced by his conference with them within two weeks of his appointment, believes that: "Business management, whether some business managers realize it or not (and I believe that many, perhaps most, of them do realize it), has a vital role to play in this period of great stress in the world." If this is a true statement by the new Director, then why did he not point out to the Labor Secretary that no new bureau was needed since business and industry already were far advanced with programs of educating or encouraging, through subsidies and tuition payments, the technological advancement of employees.

Thousands of thinking employees have, by developing new skills, avoided unemployment and have maintained or improved their positions with employers. But many, many thousands more have not avoided, and will not avoid, loss of jobs because of apathy, indifference, and the knowledge implanted during the last three decades, that, come what may, Uncle Sam will take care of them. And no new bureau can do much to change that.

Thomas E. Dixon
Waukesha, Wisconsin

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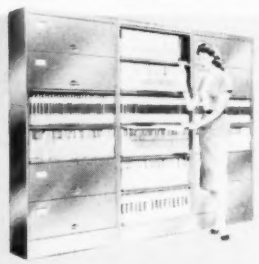

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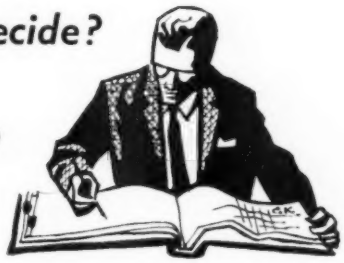
DOES THIS MAN DESERVE A RAISE?

Who should decide?



His immediate supervisor?

or

An executive in another office?

Here's a practical way to

DELEGATE SALARY ADMINISTRATION

By ROBERT R. DOBERSTEIN
Management Consultant, Chicago
Cresap, McCormick and Paget

WHEN a business grows, the chief executive must delegate administrative responsibility. If he does not, either he or the business, or both, will crack up. By delegating, he gains relief from many pressures and distractions. He is then in a position to concentrate his full energy and talents on the development of the business.

Delegation is not synonymous with abdication. To be wholly effective, it must be accompanied by suitable control—the chief executive must always shoulder the final responsibility for the soundness of all actions. The administration of salaries is one area of management in which both delegation and control are feasible and readily attainable.

With a well-conceived plan for wage administration and sound policies guiding it, responsibility in salary matters can be delegated to lower levels of management with no loss of control. This can be assured by the establishment of standard rules on which salary decisions are based. Top management can be provided with criteria to measure the propriety of these decisions.

Every executive who has had to make salary decisions without an established plan realizes the personal frustration that arises from trying to arrive at equitable decisions "off the cuff." As companies grow larger and top management becomes further removed from direct contact with operations, the problems and

Top management can control wages through its unit supervisors

frustrations involved in such decisions become more acute.

A headquarters executive responsible for final approval of all salary increases in a major organization describes the kind of problem he encountered before his company adopted a sound salary plan.

"My company operates a number of parts depots in various sections of the country," he explains. "These depots vary in size and complexity, but, while organized and operated along similar lines, have enough significant differences to warrant common treatment a hazardous matter. Recommendations for salary increases were submitted to me from such widely separated places as North Dakota and Louisiana, both over a thousand miles from headquarters. Pertinent information regarding the duties of the positions and their relationship to other positions within their respective depots, in other depots, or at headquarters was not readily available.

"To confuse the situation further, the salary rates and raises recommended varied considerably. Data on salaries paid to other employees in similar positions within the company could be secured, but not conveniently. Furthermore, no analyses had been made of salaries paid for similar positions by other employers in the same field."

With only the most meager information, this headquarters executive was expected to make intelligent decisions affecting employees and salary costs throughout the company. The vulnerability of his position was plain to him, and there was a serious question in his mind as to the usefulness of his salary reviews.

Although an experienced executive is usually equipped with enough general knowledge and good intuitive judgment to permit his making reasonable salary decisions, even without a well-established basis, he has no way of knowing just how good or bad his judgment has been, either in individual cases

AUTHORITY FOR RECOMMENDATION AND APPROVAL OF SALARY INCREASES UNDER A SOUND SALARY PLAN

Position Level	Recommendation For Increase Made By	Review For Compliance With Policy By	Final Approval On	
			Increases Within Lower Two Thirds Of Salary Range	Increases In Upper Third Of Salary Range Or Other Exceptions To Policy
Positions Below Supervisor Level	Immediate Supervisor	Salary Administrator	Department Head	Company Officer In Charge
Supervisor Or Equivalent	Department Head	Salary Administrator	Company Officer In Charge	President
Department Head Or Equivalent	Company Officer In Charge	Salary Administrator	President	
Company Officers	President		Board Of Directors	

SUGGESTED SALARY CONTROL REPORT

Grade	Monthly Range			Number Of Salary Rates					Total Employees	Total Payroll Amount	Average Salary	Relation To Midpoint	
	Min.	MP	Max.	Below Min.	Lower Third	Middle Third	Upper Third	Over Max.				-	+
1	$ 435	$ 500.00	$ 565			1		1	2	$ 1,050	$ 525.00	$	$+25.00
2	485	560.00	635				2		2	1,205	602.50		+42.50
3	545	632.50	720	1	1	3			5	3,015	603.00	- 29.50	
4	610	710.00	810	1	2		2		5	3,470	694.00	- 16.00	
5	680	790.00	900		2	1			3	2,180	726.66	- 63.34	
6	760	880.00	1,000		1	2			3	2,600	866.67	- 13.33	
7	850	990.00	1,130			2			2	2,100	1,050.00		+60.00
8	950	1,112.50	1,275		1		1		2	2,200	1,100.00	- 12.50	
9	1,050	1,225.00	1,400			2			2	2,500	1,250.00		+25.00
10	1,175	1,375.00	1,575	1	1				2	2,325	1,162.50	-212.50	
11													
12													
Totals				3	8	11	5	1	28	$22,645	$ 808.75		

A salary plan should include a definite system of delegation (top chart) and periodic reports to management (bottom chart).

or in terms of the company-wise aspects of salary administration. Certainly, under such circumstances, the degree of true control that he exercises over salaries is quite questionable. He spends his valuable time on matters that, with a sound salary plan, could be performed more effectively at lower management levels.

The extent to which top management time can be wasted in this manner is illustrated by the past practice of one multi-divisional company. In this organization, the president approved all salary increases, and an assistant to the president kept all salary records.

When the general manager of a division a thousand miles from headquarters recommended a five-dollar-a-week increase for a secretary, the recommendation was reviewed by the president and his assistant. If the amount was considered too great, or if the girl had been given an increase less than a year previous, the president would write to the division manager and suggest a smaller increase. Eventually, an agreement would be reached, and an increase approved. In such an instance, the cost of the management time consumed could well exceed the annual cost of the salary increase granted.

More significantly, it should be pointed out that the general managers in this same company were responsible for the operations of divisions with yearly sales volumes ranging from about $5,000,000 to about $25,000,000. Daily, they made operating decisions and commitments involving substantial sums of money and were held directly responsible for the profits of their divisions. Yet, there was a reluctance to entrust them with authority to make decisions on salary matters of relatively little significance to overall divisional and company operations. Thus has top management in some companies allowed itself

to become involved in routine salary transactions to a degree that is far out of proportion to the importance of these transactions.

In other companies, salary committees of top management executives are formed to deal with salary administration. These committees multiply the top management time spent on salary matters. But, what is a more serious and basic consideration is that they often have the effect of weakening the stature of the organization's line management. If the final authority to grant or deny a salary increase rests with a committee located at headquarters far from the employees affected, in what light must the workers regard their line supervisors and managers?

This is a serious problem because it is directly concerned with the company's fundamental philosophy of management. Should line management decisions be made directly by specialized staffs and committees, or should the line managers themselves make them with guidance from upper levels? The latter alternative is favored by most leading companies.

In salary administration, as in other matters, committees and staff groups can serve a useful purpose. They can direct the formulation of basic salary administration plans and related policies. Once the plans and policies have been developed, they recommend them for top management approval and adoption. As modifications are required, they also act on them. In short, committees can be useful for deliberative purposes, but should not be allowed to take on executive responsibilities.

Developing a wage plan

A substantial amount of information has been amassed over the years regarding the techniques of developing sound plans for salary administration. No single technique is equally applicable in all instances. The particular technique to be employed in any given case must be determined on the basis of such factors as the size and complexity of the organization involved, the kinds and levels of positions to be included, the existing salary administration policies and practices, and the availability of a qualified staff to develop the plan.

Regardless of the development technique selected, certain objectives must be achieved if the plan is to be fully effective. These may be stated broadly as: *equity*, *simplicity*, *communication*, and *control*.

Internal equity can be achieved by making an objective evaluation of the positions involved and assigning them to rate ranges that fairly represent the differences in job responsibility and complexity.

Ideally, the exact salaries paid within each range should be established on the basis of individual performances by the employees involved, not solely by length of service. Careful analyses of rates paid by other companies for comparable positions will assure *external equity*.

Avoidance of complex evaluation methods and recognition of only significant job differences will keep the plan *simple* enough to be understood by both employees and managers. When distinctions between positions are made too fine, they are difficult to justify and require too many rate ranges. These conditions make the plan difficult to administer and reduce its effectiveness.

If the company is to realize the full morale and incentive value of such a plan, it is important that the employees understand it reasonably well. While companies differ in opinion on the amount of information to be *communicated* to employees concerning salaries, they should at least inform them that (1) there is a plan, (2) it is based upon an objective evaluation of each job and an analysis of rates paid by other companies, and (3) each employee has an opportunity to earn more money by good performance on the job.

Finally, *control* can be guaranteed by means of sound governing policies with built-in check points. These policies should indicate:

- Frequency of salary reviews for each position.
- Increase amounts to be granted for satisfactory, above satisfactory, and outstanding performances.
- Who has authority to make salary recommendations.
- Who has authority to approve salary increases.
- Provisions to cover high level authorization of special cases not clearly defined by plan.

As part of the recommendation procedure, all proposed increases should be routed to the personnel department to be reviewed for compliance with policy before submission for final approval. This step will assure that all proposed salary changes either conform to established policy or are routed for special approval.

Care should be taken, however, to limit the personnel department to a policy review and not allow it to judge the merit of the recommendation.

Periodic one-page reports should be prepared for each organization unit, showing:

- Number of salary rates in each range that are below minimum, in the lower, middle or upper third, and above the maximum rate.
- Average rate in each range and its relationship to the midpoint or some other control point.

Since salary rates do not change frequently, such a report need be prepared only quarterly or semi-annually. It will provide top management with a clear and concise picture of the trend of salaries in each organization unit. Thus, information will be readily available for use in restraining overly-liberal managers, prodding overly-conservative ones, or otherwise taking necessary management action. Moreover, it will provide a means of control substantially more effective than top management review of salary transactions.

A sound salary program of this type restricts top management's involvement in salary administration details to matters of policy exception and wage increases for immediate subordinates. The benefits to be gained in terms of time saved, frustration avoided, and generally improved effectiveness are so substantial and easily attainable that no growing organization can afford to live without them. ■

AM Conference Calendar

ACM Annual Meeting, Los Angeles, Sept. 6-8.
Sponsor: Association for Computing Machinery.
Place: Statler-Hilton Hotel.

International Systems Meeting, Cleveland, Oct. 9-11.
Sponsor: Systems and Procedures Association of America.
Places Statler and Pick-Carter Hotels.

NOMA Fall Communications Conference, Philadelphia, Oct. 9-11.
Sponsor: National Office Management Association.
Place: Bellevue-Stratford Hotel.

Eighty-seventh Annual Convention of American Bankers Association, San Francisco, Oct. 15-18.
Sponsor: American Bankers Association.
Place: Civic Auditorium.

NBFA Conference, Miami Beach, Oct. 15-19.
Sponsor: National Business Forms Associates.
Place: Americana Hotel.

Computers Applications Symposium, Chicago, Oct. 24-25.
Sponsor: Armour Research Foundation.
Place: Morrison Hotel.

5th Electronic Business Systems Conference, Long Beach, California, Oct. 25-27.
Sponsor: National Machine Accountants Association — Western Division.
Place: Lafayette Hotel.

NASS 19th Annual Convention, Cincinnati, Oct. 29-31.
Sponsor: National Association of Suggestion Systems.
Place: Netherlands Hilton Hotel.

Twenty-fifth Anniversary Industrial Engineering and Management Clinic, Chicago, Nov. 1-3.
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WINNING AND LOSING AT TH

Some straight talk on the touchy topic of ethics in the anxiety-ridden race to get ahead and stay on top

By RAY E. BROWN
Professor, Graduate School of Business University of Chicago

In his first installment, Mr. Brown warned administrators against managing personnel with the iron hand of arrogance and domination. Here, he treats the topic of self-esteem at the management level.

SOMEWHERE between a stomach ulcer and calcifying complacency the administrator must learn to control his desire to be on the winning side, if he is to survive emotionally. Like many of us, he was born with an innate urge to "cop all the blue ribbons," but in the case of the administrator, this can easily become an obsession.

He is under more pressure to win consistently than most other individuals. Many of his decisions involve the welfare of numerous people. There are also meaningful financial consequences attached to some of his decisions. For these reasons, much consequence is attached to his winning and losing record.

The greatest pressure on the administrator may come from within himself. His experience has taught him that the winner's circle is the only place where blue ribbons are awarded and that the score on administrators is kept in terms of those winner's ribbons. If he got to his present position by merit, then he got there by being a consistent winner. He won because he was aggressive and worked to win. He learned the fate of the little Lord Fauntleroys as he passed them on the way up.

He also learned that administrative life is not like a tennis game and that competition does not end with opponents leaping over the net to embrace each other. Because he knows that life is real and plays for keeps, he is likely to start worrying more about losing than about winning. While this might sound like splitting a linguistic hair, there is a profound difference between the two.

The fear of loss is entirely different from the joy of winning. Whether one plays to keep from losing, or plays to win, determines the sort of rules he will keep. Those who want to really win will follow all the rules because they know this is the only way one can really win. Those who fight primarily to keep from losing are not restricted by the rules because their goal is actually one of winning at all costs. They are like the person who cheats himself in a game of solitaire.

One way to keep from losing is to handpick opponents and problems. This way out is taken in administration much more than we realize. Administrators often turn their heads, as well as cheeks, when confronted by problems or individuals too tough for them. Some administrators refuse promotions or job offers from other organizations because they are unwilling to face the chance of failing. They are willing to pay in terms of career opportunity for the right to stay in a league where they are sure they

THE ART AND SCIENCE OF ADMINISTRATION

. . . NO. 2 IN A SERIES

can win. Others take the promotion, but avoid stiff tests of their skills by resisting change and holding the enterprise down to their own fighting weight.

Some circumvent challenges by simply passing the buck. Employing the honorable principle of delegation for a not-so-honorable purpose, these administrators assign the hardest and meanest problems to their subordinates, thus feeling out the difficulty and softening it up before they enter the picture. Also, there is a scapegoat available in the event of failure.

Administrators who keep their score by losses, rather than by wins, are likely to be allergic to new ideas. Because the chance to win also represents a chance to lose, they are reluctant to increase their exposure to losing. They become overly-cautious and confine their fire only to ideas that look like sitting ducks. Administratively speaking, they become afraid of the dark and venture out only in the company of a committee. They never realize that there is no refuge from new ideas, nor that administrators are blamed just as much for what they fail to do as for what they fail in doing. Only those who take a chance can possibly ever expect to have one.

The administrator must, of course, be realistic in the chances that he takes. He can easily overreach his personal resources and those of his organization. But strangely enough, it is the extremely ambitious who seem to develop the most anxiety about risks. Failure is, after all, a relative thing and depends upon the level of aspirations an individual sets for himself. Unless one's aspirations are controlled, he will become more fearful of losing each time he wins.

The unwillingness to lose forces some administrators to become skilled in excuses. They tell others, and even themselves, that outside interference, bad breaks or extenuating circumstances caused their failure. Under this form of alibi administration, they defy reality itself by ducking the facts. If this sort of administration becomes habitual, they find it impossible to overcome personal deficiencies because they refuse to recognize them.

Many attempt to win a "moral victory" even after their actions and decisions have been clearly discredited. In these circumstances, they try to prove they are right by forcing the organization to continue an unworkable or obviously inefficient system. This can be defined as administrative face-saving. Too much emphasis is placed on saving face in administration, and not enough thought is given to the problem of saving respect. The administrator may silence, but he cannot fool, those responsible for carrying out an impractical decision. If face-saving is really important, it would seem to be better strategy for the administrator to admit his errors and sweep them under the carpet as soon as possible, rather than give them the prominence that results from the complaints of those burdened by them. It is surprising how many improvements can come out of things that go wrong, and it is possible to learn much more from failures than successes.

The effort to perpetuate an error can also burden the administrator because it is not an efficient answer and will require more than ordinary effort to carry out in everyday operations. If the feelings of the operating personnel are strong against the idea, it is likely to be sabotaged by slight effort. The refusal to give an inch under such circumstances can cost an administrative mile.

The determination to make a poor idea look good can weigh heavily on the administrator. Rather than feel the relief one experiences when admitting an error he often chooses to worry about face-saving. Not only does one feel the noblest on those occasions when he is able to muster the courage to admit he goofed, but a good bit

When he makes a good decision, the administrator has the right to feel "like a king," but when he makes the wrong one, he should admit it without excuses.

For his own benefit, the administrator should not stifle fresh ideas

of the respect he has for other men can often be traced back to the times they were wrong and simply said so. Also, by admitting his error, the administrator may take the fight out of the opposition. There is very little left to say to anyone who admits that he erred unless one wants to be guilty of jumping all over the repentant.

Art of losing gracefully

If he is going to lose, the administrator should attempt to lose gracefully by not looking for a scapegoat and confessing his mistake as soon as he realizes it himself. In other words, he should avoid putting the organization to the painful, sometimes costly, task of proving him wrong. According to the code of the business world, the administrator is regarded as the defender, not the prosecutor, of errors, even those for which he is not responsible. This does not mean he shouldn't hold individuals responsible for their failures, but it does mean that he must be prepared to shoulder the blame for errors of others as well as for his own.

By not developing the art of losing gracefully, he may only succeed in losing the good will of those involved. This fact was brought home to me by my own conduct as a hospital administrator recently. A patient on leaving the hospital neglected to claim a coat for which we had given her a receipt at the time of her admission. Some weeks later, she visited the hospital to claim the coat, and it could not be found. By law, and by our own policies, we were clearly responsible and knew we had no alternative except to reimburse the patient. Because it was a rather valuable coat, she was referred to my office for review and approval of the claim. We had no quarrel over the value of the coat, but I found myself attempting to place the blame for the loss on the patient and her failure to take the coat at time of discharge. It finally occurred to me that I had already told the patient we would pay and that I was about to buy several hundred dollars worth of ill will, instead of good will.

The obsession to win at all costs on the part of the administrator can be one of the largest deterrents to a profitable exchange of ideas between him and his colleagues. There can be no battle of ideas within the organization if the reward is the boss' disfavor. The willingness to permit ideas and decisions to be discussed and pulled apart before committing the organization to follow them represents about the only method available for pre-testing of administrative ideas. The administrator deals in ideas and these, unlike goods and things, cannot be tested in the model stage before placing them on the market.

Two heads better than one

Two minds may produce new approaches and insights that neither would have generated separately. Often, two different experiences and two different outlooks fit together to produce a novel solution to problems of long duration. To get such an administrative extra, however, the administrator must exhibit patience and tolerance toward the independent thinkers in the organization.

This can be very trying to the most patient of administrators. Independent thinkers are not the most tactful and persuasive of individuals and are likely to rub the shine off their ideas by rubbing the administrator the wrong way. Independent thinkers also are likely to be independent in all other ways and deservedly be in the administrative doghouse part of the time. Admittedly, these organizational mavericks can represent a bothersome cross to the administrator. However, if he can carry it, and hold them in line, he may find that,

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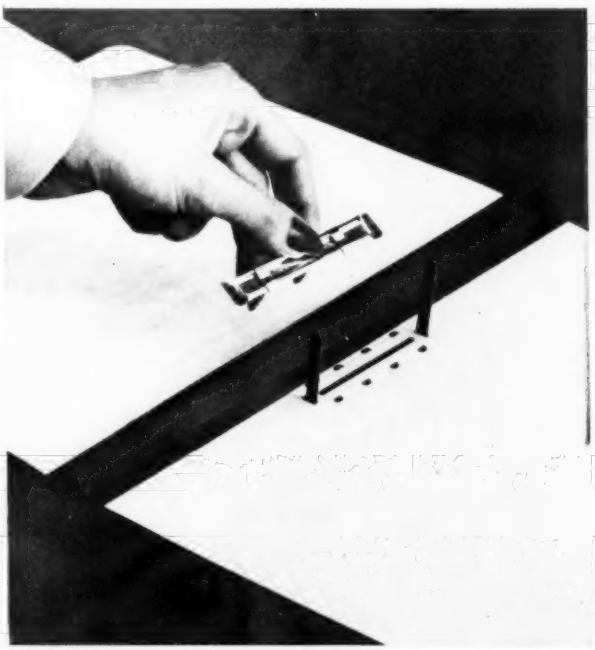

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A passion to dominate often spurs a leader to hog the spotlight in every situation

at times, it can be a cross of gold.

This justification for participation in decision-making by those responsible for implementation is not made from an employee relations standpoint, but purely in the interest of effective administration. Permitting the appropriate colleagues and subordinates to participate is not so much a favor to the participants as it is a favor to the administrator. It not only permits pre-testing of ideas by exposing them to the scrutiny of those who will have to use them, but it very often assures support of the ideas instead of sabotage. Human nature being what it is, there is no better way to insure support, as well as defense, than to involve others.

A passion to dominate often affects the judgment and action of the administrator. It is related to his obsession to win, but it is not the same thing. It can best be described as a hunger for the spotlight.

Unless checked, his appetite for attention can get out of control, and he will pick the platter clean, leaving nothing for others who take their meals with him at the organizational table. It will mean that he starts taking personal credit for the ideas and accomplishments of his subordinates. Instead of acclaiming the contributions of his staff, he will claim them as his own.

To legitimize his steal, he may apply the "antiquities statute" and claim that a similar idea has been under consideration for some time. In the long run he is, of course, not fooling anyone, while stifling initiative and building up resentment against himself. His pickings will grow leaner because such expropriation of credit will cause a flight of ideas from the organization as the thinkers seek a more rewarding climate, or become infertile because of lack of recognition. The most effective administrators recognize this fact so strongly that they, on occasion, give credit down the line for ideas that actually originated in their own mind.

Monopolizes conversation

Finally, the urge to be front-and-center at all times can result in the administrator becoming a master of monologue. He seems compelled to do all the talking, and this extends even to casual and social conversations. When he isn't talking, he is so occupied in looking for an opening, in which to take over, that he doesn't listen. This fact is demonstrated by the way he breaks into a discussion when the other person pauses, though it is obvious to others that the speaker is in the middle of a point. Undiplomatically, he demands a captive audience because he is the "boss." To him, this behavior may symbolize power of position, but to others it is strictly a sign of self-centeredness. ■

(To be continued)

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"THE SECOND AUTOMATION REVOLUTION"

By ERIC N. GRUBINGER
Manager, Special Services
Minneapolis-Honeywell EDP Division

IN ITS SHORT LIFE SPAN of less than two decades, electronic data processing has already undergone a significant technological revolution and is now in the midst of a second one.

The *first revolution*, the transition from vacuum tube to transistorized computers, resulted in great economies in the initial cost of equipment, space requirements, power consumption and maintenance. The "new generation" computers are generally smaller, but more powerful and reliable than their predecessors.

The *second revolution*, centering around the development of sophisticated programming aids, is destined to produce even greater savings in day-to-day electronic data processing operations.

Computers are extremely intricate machines that are only capable of doing what they are told. Every step must be spelled out for them. A simple data processing job, such as calculating a payroll or insurance premiums, can require several thousand instructions.

Since the digital computer, the type used for business data processing, only understands a complex code language, it is an extremely difficult, time-consuming task to manually write out the detailed instructions that enable this machine to carry out a specific task. The programmer must not only know the computer's language, but he must also perform the complicated task of combining individual sets of instructions to guide the machine through a complete assignment.

Automatic programming aids, now on the market and still being improved, are easing the programmer's labor. They make it possible for him to prepare computer programs much faster and cheaper.

Known as "software," these aids are not machines. They are actually families of prepared, or partially pre-fabricated programs usually supplied by the computer manufacturer. They are normally delivered free of charge to computer customers, who apply them to their own EDP systems.

Some of the better aids are cutting program preparation to one-twentieth of the original time—in some instances even more, depending upon the computer applications involved.

Time reductions of this magnitude will lead to savings of tens and hundreds of thousands of dollars on single computer applications in the future. This will mean millions of dollars for an EDP user with many applications.

Programming aids also simplify the job of training programmers. It takes months for a person to become competent in manual programming, but with the new software this may require only weeks—and in some cases, just a matter of days.

These aids, by eliminating much of the human factor, tend to produce more accurate programs. This lessens the need for finding and correcting human errors in the completed work.

The net result of this advancement in programming will be to make EDP more attractive to a growing number of potential users. It will be possible for an organization to convert to electronics much more rapidly than heretofore. Some believe the lead time required for preparing EDP applications may well be shortened from an average of about two years to just six months.

Consider, for example, a typical company planning to use a medium or large scale computer for five or six basic applications, such as payroll processing, production scheduling, and inventory control. Some individual applications require as many as 50 different programs for fulfillment. Preparation of the programs for five or six applications by manual methods, taking into account that human errors will require the rewriting of many programs, could easily take 100 man-years of work. Good programming aids can diminish this work load to 20, or perhaps even 10 man-years. The cost reduction in dollars will be comparable.

Automatic programming aids generally fall into two categories: *assembly systems* and *compilers*. An assembly system should actually be thought of as semi-automatic. It provides the programmer with a greatly simplified language in which to write his instructions and some pre-checked program segments. The programmer writes his instructions in assembly language. For the most part, the assembly system translates these on a one-to-one basis into machine instructions. In some cases, the instructions order the assembly program to "call in" large pre-checked segments from a magnetic tape library for automatic incorporation into the program. The majority of the programmer's instructions, however, are translated into machine language on a one-for-one basis.

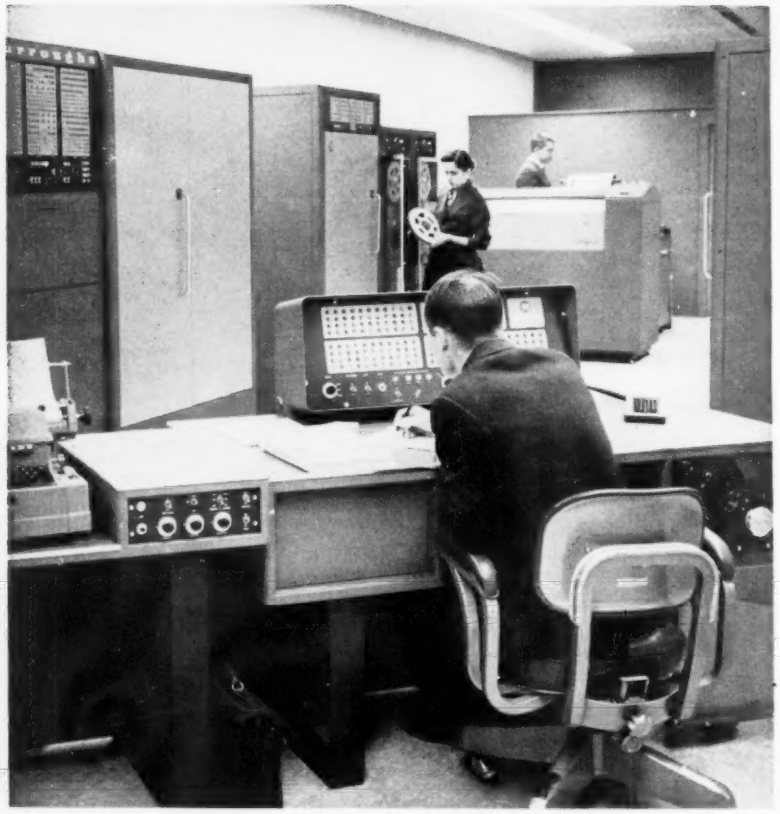
Compilers, on the other hand, are fully automatic aids. They pro vide the programmer with a lan guage written in English statements (for business data processing) or mathematical statements (for scientific computations) that is even easier to learn and use than assembly language.

Directed by these simple statements, compilers automatically arrange and create the detailed instruction sequences that will expedite the desired ends in the EDP setup. There is virtually no one-for-one translation, as in assembly systems. The programmer need not necessarily know the details of the program construction.

The following analogy may be helpful in comparing assembly sys-

In just a few lines of writing, a Minneapolis-Honeywell programmer completes a file sorting program, using Honeywell's FACT language, which reduces thousands of coded instructions to a few simple English-language phrases.

The difference in human effort involved in writing an average program in machine code, semi-automatic assembly, and fully automatic compiler languages is demonstrated here with miniature building blocks by a Honeywell employee.



WHAT ROLE WILL DATA PROCESSING PLAY IN YOUR COMPANY'S FUTURE?

ADMINISTRATIVE MANAGEMENT, which pioneered the first reports on Automation in the Office in its 1955 issues has long since extended its coverage to interpret in depth the role data processing is playing in the office, the trends that it has brought about, its implications for every aspect of the office's activities. 40,000 ABC paid subscribers* look to ADMINISTRATIVE MANAGEMENT to put automation in the correct perspective in the office field. In addition to its articles in depth on every implication of automation, the magazine reports each month the most important installations and latest developments in the field of equipment.

Subject to ABC audit

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Administrative Management

Formerly OFFICE MANAGEMENT AND AMERICAN BUSINESS

The Magazine of Administration and Systems

A GEYER-McALLISTER PUBLICATION

212 Fifth Avenue, New York 10, N. Y.

BUSINESS PAPER LEADERSHIP ABP

AUDITED PAID CIRCULATION ABC

Compiler easiest to use

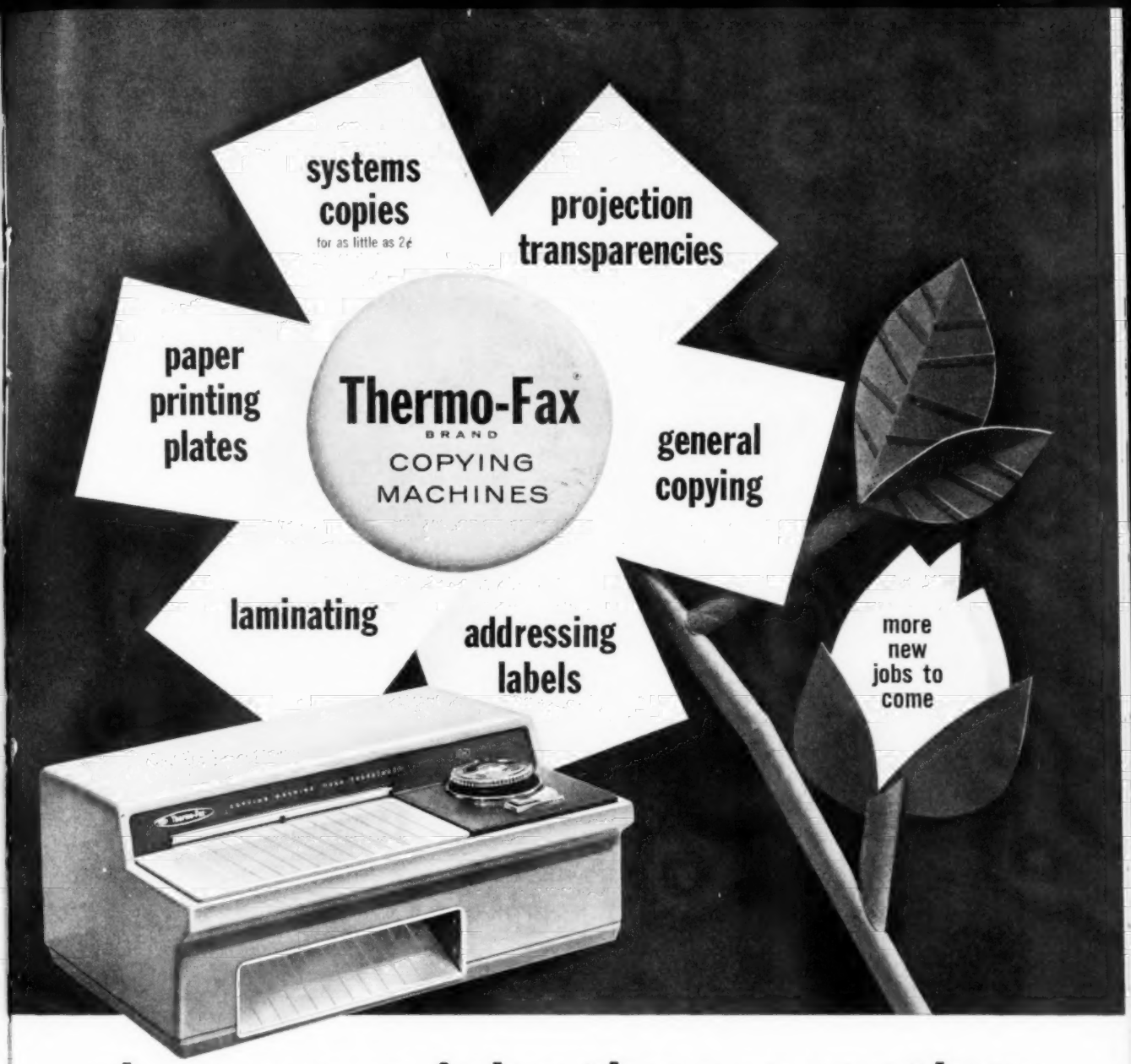
tems and compilers to each other and to the manual method of programming. Bearing in mind that programming in the last analysis involves the systematic and detailed assembly of instructions, it may not be stretching the imagination too far to liken the process to that of constructing a house.

The manual programmer, in this analogy, is the pioneer who sets out to build his home with an absolute minimum of tools. He hews his timber, forges his nails, kilns his bricks, and then erects his house piece by piece. In much the same manner, the manual programmer pieces together his program, without the aid of improved tools or prepared materials, bit-by-bit in fundamental machine language.

Using an assembly system can be likened to constructing a house with prepared building materials. The carpenter buys lumber, nails, doors, windows and roofing from the lumber yard and proceeds to build his house with these modern tools. Similarly, the programmer employing an assembly system uses improved materials and tools in the form of simplified instructions and some pre-checked program components, plus the assistance of a computer, to translate his simple instructions into machine language.

To complete the analogy, programming with a compiler may be compared to building a pre-fabricated house. All the major components have been pre-constructed for the carpenter. All he has to do is buy and assemble the sections. The programmer using compiler language instructs the computer to automatically create an ordered series of pre-fabricated machine instructions into a complete program ready to perform the desired data processing task.

Not all assembly systems are equally useful, and not all compilers provide equal savings. Since programming costs, as we have seen, can be a major factor in the total cost of operating a computer, the user must seriously evaluate not only the machinery ("hardware") he is buying, but also the software supplied by the manufacturer. ■



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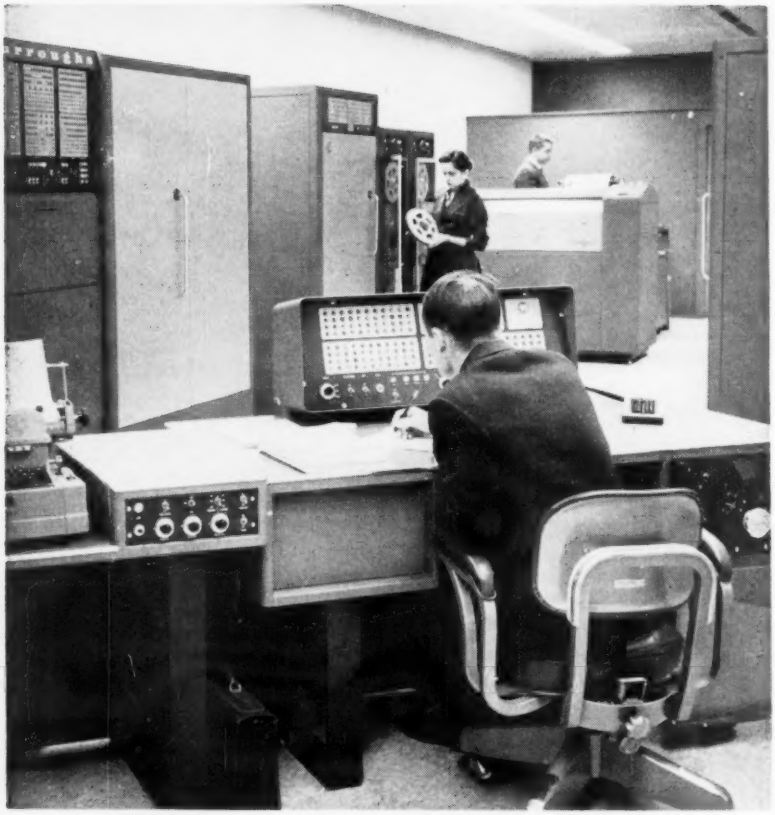

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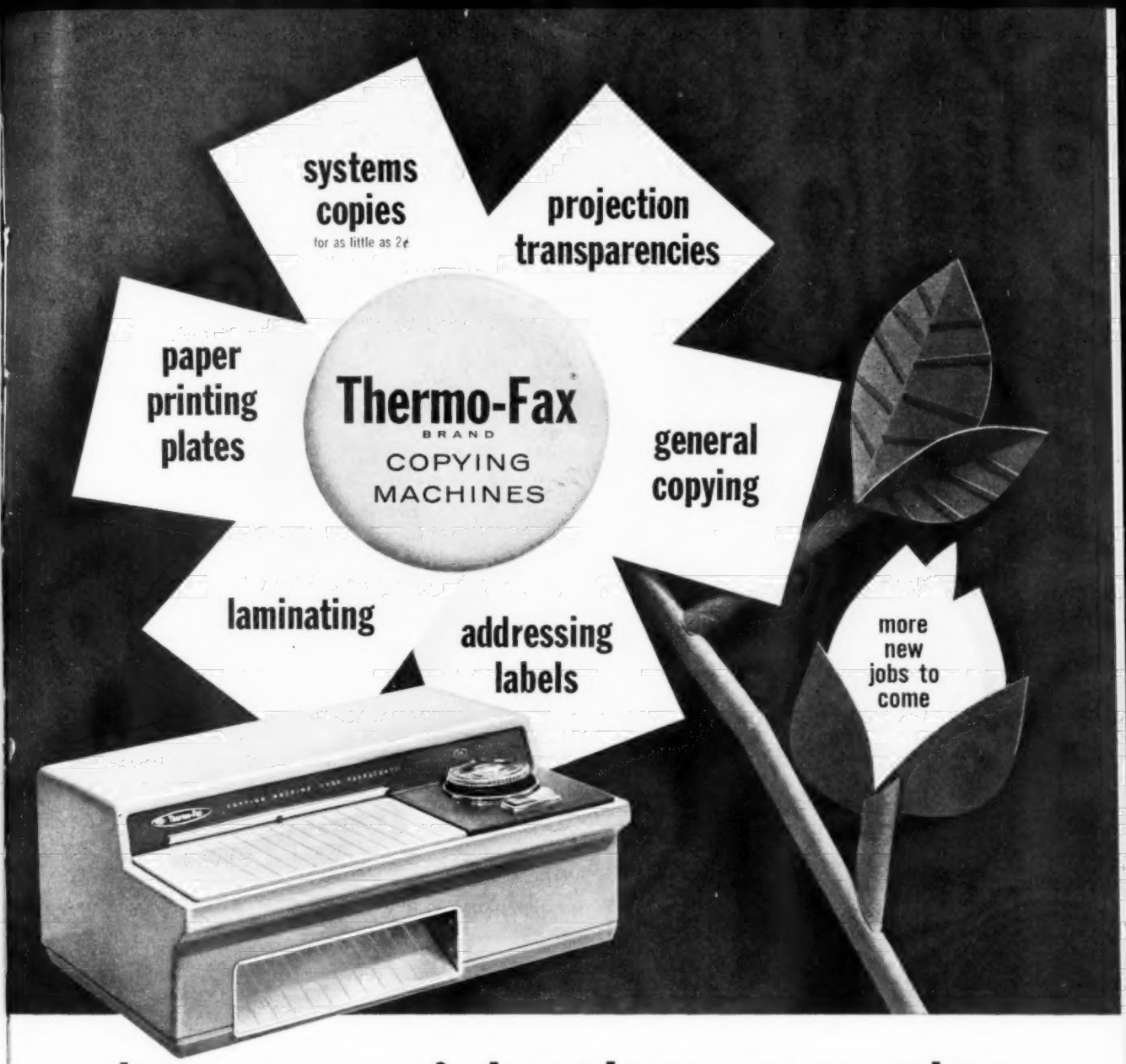

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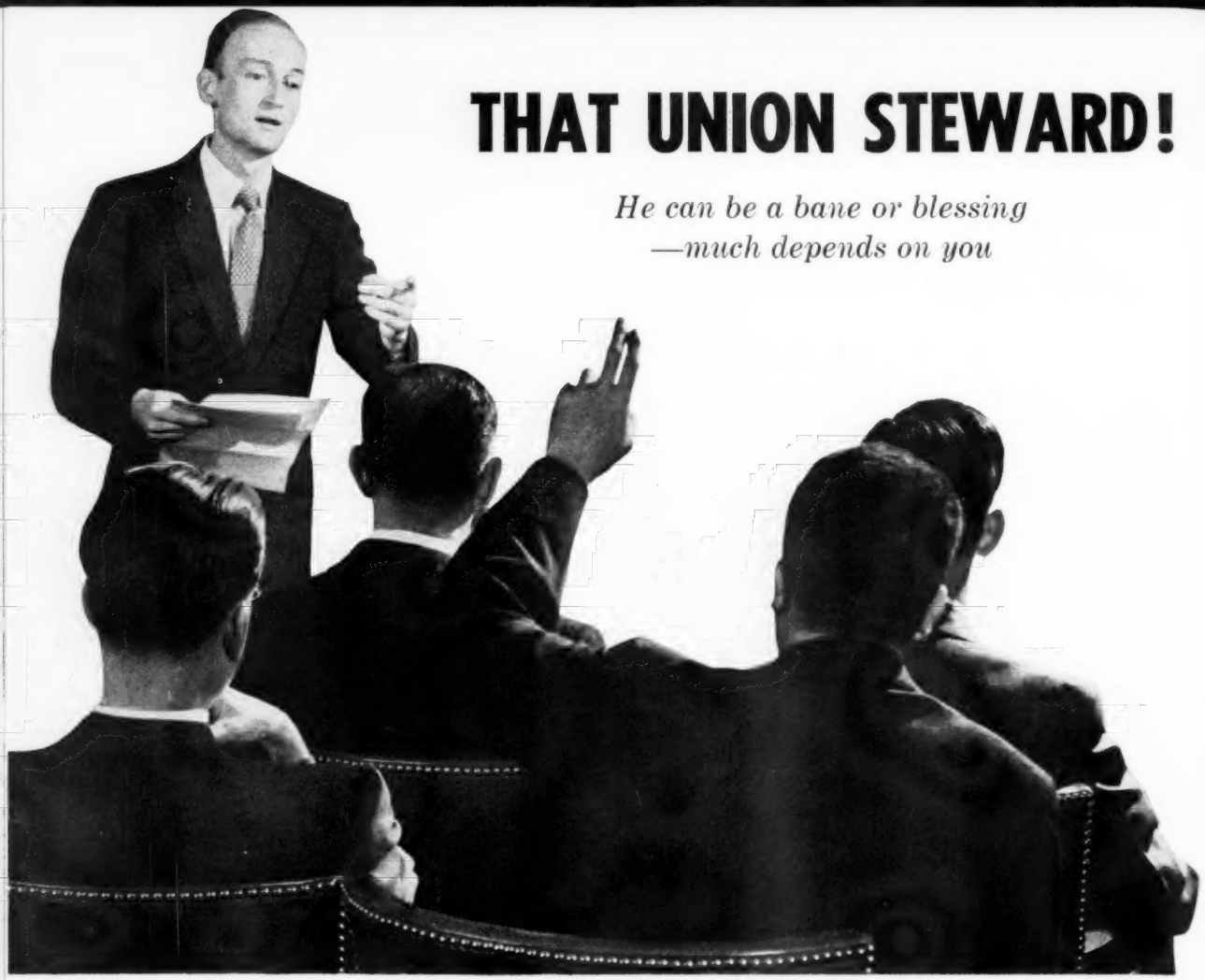
THAT UNION STEWARD!

He can be a bane or blessing
—much depends on you



By union representative:
BARBARA A. DOOLEY
& management representative:
CHARLES W. PHILLIPS
Kollsman Instrument Corp.
Elmhurst, New York

AS AN ADMINISTRATOR you are responsible for getting work done through other people. Sometimes you feel that it's difficult enough just getting the work done, without having to handle other people and their problems. Some of these *other people* might be the toughest, most nerve-wracking part of your job, especially if they are *union stewards.*

Understandable, we'd say! After all, you represent management and the steward represents the union. You naturally have contrary aims and interests. There's bound to be conflict between you. Why should we pretend otherwise?

But, conflict isn't necessarily bad. In fact, rightly handled, it can be fruitful. We wouldn't be stretching a point too far to say that *all* new things – ideas, inventions, etc. – arise out of one sort of conflict or another. But, wrongly handled, conflict can make a mess out of individual lives, family relationships, and business firms.

To insure healthy conflict between you and the steward, you should stand up for your position when you think you are right. Of course, the steward should do the same. When you're wrong—and you sometimes are—you should admit it. When the steward's wrong—as he sometimes is—he should admit it, too. Bullheadedness will get neither of you anything except anxiety.

We might add that the supervisor is probably in a more ticklish spot than the steward in this respect. For, if he "kicks the steward around" too much, there may be trouble at negotiation time, which management won't particularly appreciate. But the steward also has something to think about. He may not be re-elected, so he'd better be reasonable, too.

In any case, a sound principle for both the supervisor and the steward to observe is this: *Don't engage in personal vendettas!* In other words, remember whom you represent.

We also have a few words to say on the subject of "fraternizing with the enemy." There are supervisors who try to "butter up" the steward by plying him with favors of one sort or another. Well, of course, human nature being what it is, this will sometimes work. But, even if it does work for a while, it's a foolish way to handle your relationships with the union. For one thing, the "bought-off" steward won't stay "bought-off." That sort of person always wants one thing *more.* Secondly, the people whom he represents will sense what's going on, and when the next election comes, they'll elect the toughest steward they can find. Sooner or later, the

guy with the loaded dice gets caught!

Whether or not you can be friendly with the steward outside the office is a question we can't answer. This depends, obviously, on what sort of a person you are and what type the steward is. But, we'd suggest that if you do get together over some beer and potato chips once in a while, that you concentrate on pleasure and forget shop talk. The union can make life rough for a supervisor who tries to manipulate a steward. We've seen it happen.

A good steward helps you by screening grievances. He evaluates complaints, and in doing so, is able to shield you from a lot of petty gripes.

This is why it makes a lot of sense for you to keep your steward well-informed. Needless to say, you shouldn't reveal anything confidential. That's none of his business, any more than internal union affairs are your business. But if you keep the steward in the dark on everything, chances are he'll have to pass along many trivial grievances to you. If you keep him well-informed, he'll know how to answer his "constituents" and might even be able to advise you on some matters.

Here's another aspect of your relationship with the steward that you may not have considered. Admit it or not, in our modern industrial society, there's a tremendous amount of bottled-up aggression and hostility. Outlets are needed for this seething discontent. If the steward understands people and has a warm human sympathy, he'll listen to his people. Sometimes his listening does a great deal to soften these hostilities.

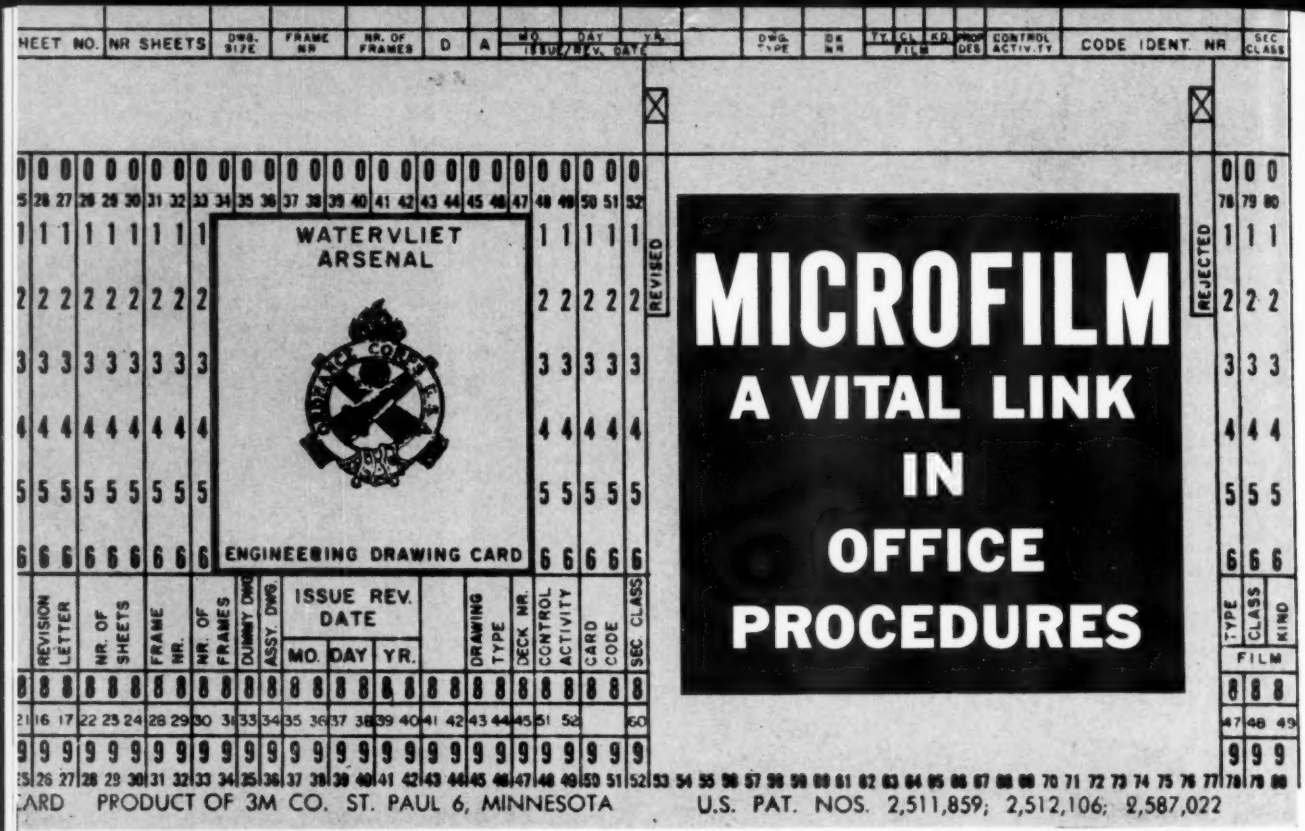
The kind of steward who is able to do this sort of thing is one who respects the company. You, the supervisor, have much to do with the steward's feelings towards the company because you are his closest contact with management. If you are reasonable and honest with him, his attitude towards the company is bound to be enhanced.

Unions are here to stay, and unless the experts are wrong, we're likely to have more, not less, unionism in the future. You as a management representative may not like the idea, but we all have to live with ideas we don't like.

It's a waste of precious energy to fight "unionism" as such. We'd like to suggest that you save that energy for your daily dealings with the specific union in your company.

If you're lucky enough to have a competent steward representing the unionized people in your office, you might console yourself with the Arabic proverb: "It is better to have an intelligent enemy than a stupid friend." ■

If you keep your steward well-informed, he can act as a buffer for management by settling petty gripes before they become serious.



AM **TOOLS OF THE OFFICE**

No longer just a space-saver, microfilm has become a reference tool in the modern office. There's a method to meet every need.

By LAWRENCE VICTOR

ONE OF THE CLICHÉS of microfilming is the picture of the filing cabinet and the pretty girl standing next to it, a tiny roll of microfilm held between two fingers and a rather smug look on her face. The roll of film (surprise!) holds all the information that's crammed into the files, and the viewer, hopefully, is suitably impressed.

Well, he should be. Microfilm's ability to compress bulky items to a mere fraction of their former size and weight is a continuing wonder. To the office plagued with a never ending accumulation of records and the lack of a plan to handle them, it is a godsend . . . if used properly.

Only by using microfilm on a procedural basis does it become a true "tool of the office" rather than a scientific curiosity and a money saver instead of an expensive toy.

Microfilm: yes or no?

Consider the following questions:

1. Are records occupying so much of your office space that the rental or construction of additional space is necessary?

2. Does the location of a filed document involve almost as much time and trouble as the purpose for which it is needed?

3. When a document is finally located, is it in such bad condition from repeated insertion and removal from tightly packed files that it can no longer be used?

4. When duplication of a record is called for, do you resort to expensive outside photostat services or duplication methods that are too slow or do not give "high fidelity" results?

5. Are ordinary methods of posting records resulting in too many clerical errors? Are these methods slowing up the flow of records, keeping them in one place too long?

6. Does the procedural mailing from office to office send postal costs soaring?

7. If your business records were to go up in smoke would your company be forced to permanently suspend operations? Over 40 per cent of concerns whose records are destroyed never resume business.

If the answer to several or all of these questions is yes, microfilming should be seriously considered. IF YOU CAN ANSWER YES TO QUESTION 1 ONLY, PROCEED WARILY. The use of microfilming just to save space is questionable. It would be wiser

to first consider a records retention and disposal program. Authorities say that 40 per cent of stored records could be safely disposed of; this would be a far cheaper solution. When, however, record accumulation is of such volume, or if storage space is at a premium regardless of price, than microfilming to save space might be feasible.

Advantage of microfilming

Retrieval. How fast can your secretary locate a document in last year's files? How much trouble does it take? Listening to some secretaries, one would think that digging through dirty, tightly-packed file drawers is only slightly less obnoxious than filing the records in the first place. (Is there anyone who actually enjoys filing?)

Microfilm not only simplifies initial filing but makes retrieval fast and simple. When records are microfilmed, they remain irretrievably fixed in the proper order (if they were filmed in the proper order) with no chance for misfiling. Since modern equipment permits filming and reading with a minimum of film handling, records remain in good shape with no loss of legibility.

When the volume of records becomes big enough, microfilming joins hands with data processing. Information about a certain reel of film can be punched on cards which can then be referred to either manually, or automatically on electronic sorting equipment. An even closer association is the aperture card. Here, the film is affixed to the punched card itself for even faster location.

Microfilming permits the centralization of records in a small area where workers may refer to documents without having to go from department to department, and they may do so while comfortably seated instead of squeezing between dusty, closely-spaced cabinets, or climbing ladders.

Duplication. How do you duplicate a record? Do you send it out to be photostated? Do you use the office duplicator? Outside service can be expensive and time consuming. If the document is confidential, too many people have a chance to see it. The office duplicating machine is excellent for reference copies for inter-office use, but are they good enough to send out in place of bills, receipts, etc.? Again microfilm has the answer through instant, exact duplication. The reader-printer, a combination reader and copy printer, delivers facsimiles at the push of a button in a matter of seconds. These facsimiles are received dry and ready to use and they can be processed rapidly for quantity duplication. For those already equipped with readers, there are separate copy printers available.

Records handling. One of the most ticklish clerical jobs is the transferral of information from one source to another. A mistake in an amount or date can, at the least, be troublesome. And manual copying is time consuming. Hand copying can be done at the rate of 40 to 50 words a minute; machine copying can be done at 80 to 90 words a minute. With a rotary-type microfilm camera, hundreds of documents can be copied in minutes with complete accuracy. Microfilm makes no mistakes since it copies only what the camera sees. If the original was correct, the microfilm *must* be correct. And here's an idea for what it's worth: Microfilmed records cannot be altered. There's no danger of such records being "fixed."

Microfilm also releases records faster so that they may go on their way quickly. This is especially important when checks are being processed. Normally, a day's receipts may take two days to post and bank. With microfilm, checks may be recorded in minutes, thereby releasing them for deposit the same

Here's that pretty girl with the microfilm; this time in the form of aperture cards.

SOME COMMON MICROFILM TERMS

APERTURE CARD—A file or punched tabulating card with a rectangular cut-out designed specifically for mounting a film image or images.
CERTIFICATION—To confirm and identify microfilm as a means of protection, usually by means of a printed form signed by the operator, declaring the intent of the microfilm and that the images are genuine portrayals of the documents in question.
CHAMBER—The sleeve or channel of a film jacket.
DEPTH OF FIELD—That area of tolerance over which the distance from the camera lens to the document may vary and still produce a sharp image.
DOUBLE-DOCUMENT STOP—A device on a rotary camera which prevents more than one paper from being fed at a time.
DUO FILMING—Recording images on only one half of the film width in one direction, and then turning the film end for end and filming on the second half of the width. This process gives greater film economy, but requires greater reduction with a possible loss of legibility.
DUPLEX FILMING—Recording both sides of a page at once and placing the images side-by-side across the entire width of the film. When used in conjunction with a planetary camera, bound pages may be filmed.
FEEDER (AUTOMATIC)—An accessory unit for feeding documents to a rotary camera at high speed.
FILM ADVANCE—Moving exposed film into or away from the exposure gate. In rotary cameras, the film advance is synchronized with the document flow, permitting high-speed filming.
FILM JACKET—A transparent acetate sleeve made to hold single images.
FILM SIZE—Refers to film width; expressed in millimeters (mm). Rotary cameras hold 16mm and 35mm film, planetary cameras use 35mm, 70mm, and 105mm film. A millimeter is about .04 inches.
FILM, UNITIZED—Images grouped singly as against collectively in a roll of film. Unitized film is usually placed on aperture cards or film jackets.
FLAT-BED—Term applying to planetary cameras where the document remains stationary during exposure.
INDEXING—Any system enabling rapid reference to filmed documents. On rolls of film, an index code is placed on the film itself.
PLANETARY—CAMERA—A camera in which the document is held in a plane and both the document and the film are stationary during exposure.
PREPARATION—Removing clips, staples, and mending torn documents before filming.
REDUCTION RATIO—The difference in size between the document and its filmed image. If a 42" x 42" document is reduced to 1" x 1", the reduction ratio is said to be 42:1. The most popular reduction ratio is 23 or 24:1. Higher rates may result in poor legibility. To determine the number of documents that will fit on a roll of film, multiply the reduction ratio by the length of the film in inches and divide the product by the feed length (length parallel to the film length) in inches plus one. Thus:

$$\frac{\text{Reduction Ratio} \times \text{Inches of film}}{\text{Feed length of paper} + 1}$$

equals the number of images per roll.
TARGET—A sign indicating the position of a particular image on a roll. It is filmed along with the image itself.

This young lady may be smiling because the 148 filing cabinets she used to work with have been replaced with two drawers of microfilm. This amount represents two and a half years' worth of sales tickets. The company involved estimates a 50 per cent saving in accounting time, not to mention an enormous savings in space. Notice the method of indexing the edge of the boxes.

day and untying what could be thousands of dollars in clerically-frozen assets. Regular posting may be done at a later time by refering to the microfilmed record.

Records transmission. How do you send information from home to branch offices? Telegraph? That's expensive and of little use when drawings or blueprints are involved. The mails? That's probably the cheapest way, ordinarily.

As an example, take a company with three scattered branch offices. Each day a mailing goes out to every branch by air mail special delivery. Assuming that each envelope weighs 20 ounces, that means $1.70 per envelope or $5.10 in daily postage. By reducing each mailing to a few inches of microfilm, they could be sent in #10 envelopes for 37 cents each or $1.11 daily. For large, bulky items, the savings would be even greater.

Mailing by microfilm is safe, too. There's always a copy in case of loss.

Records safety. Try to imagine your company minus its records, if you can. Pretty horrible thought, isn't it? Yet, the chance of records destruction is ever present. This is one of the main reasons why companies have duplicated their irreplaceable documents with microfilmed copies. As a test of this procedure, one mid-west bank set up a mock situation in which all original records were considered destroyed. They wanted to see how fast they could resume operations with microfilmed copies. Within four hours after "destruction," they had set up an emergency records center and were back in business! All thanks to microfilm.

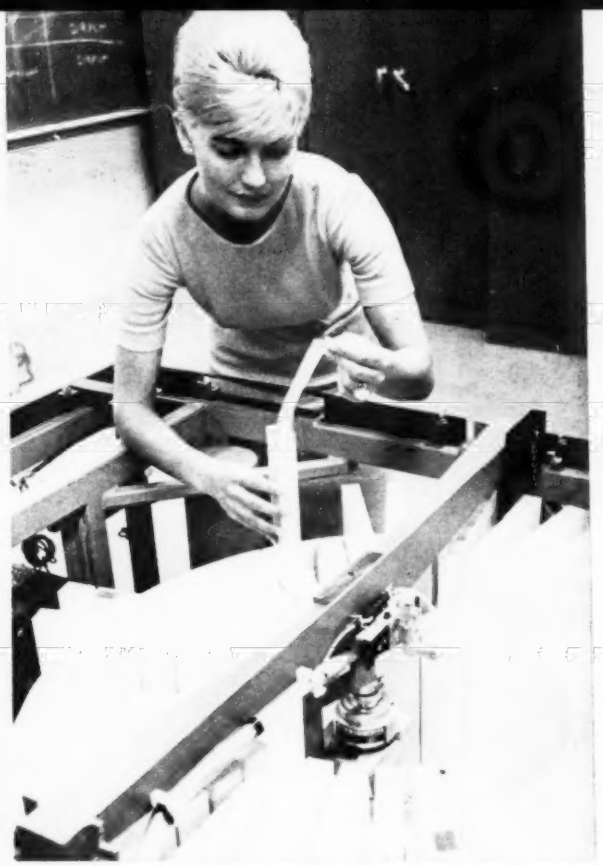
There are other ways to protect original records. Storing them in remote vaults is one way. But even here, microfilm has an advantage. Microfilmed copies are cheaper to store because of their reduced size. Fire insurance is cheaper for microfilm than for originals . . . another point to keep in mind.

If your records are stored in remote locations, how do you refer to them when necessary? Traveling back and forth to the vault is a waste of time. Microfilmed copies on your premises give you access to your records while the originals remain undisturbed elsewhere. The safety storage people themselves realize this and are beginning to offer microfilming services as part of the storage procedure. Incidentally, the latest microfilm cameras can actually do double filming, making one copy for active use and one for security, both at the same time and automatically.

The first step

The best thing the novice can do is seek expert advice. Setting up a microfilm installation is an expensive procedure. Quality equipment is not cheap. Choosing the wrong equipment can wipe out any of the advantages hoped for. Fortunately, almost every major manufacturer and distributor offers advice and a complete survey without charge or obligation. These men are trained to determine the right equipment for each applica-

A major insurance company is now using microfilm to record the more than 3,500 policy applications that come in daily. The cameras used are planetary types distributed by Remington Rand.



IBM's latest retrieval system is called "Walnut." Strips of film holding 99 images each are stored in a bin file. Punched control cards will swiftly locate and duplicate one image in 990,000,000.

tion. They can tell you whether to buy or rent, and show you how to prevent obsolescence by predicting future needs. Since all this is free, it would be very foolish for the prospective purchaser not to get estimates and surveys from as many outfits as possible. Another good idea would be to familiarize yourself with the basic equipment.

Microfilm cameras

Microfilm cameras, the costliest piece of equipment, are of two types: rotary (sometimes called "flow" cameras) and planetary cameras.

Rotary cameras. The great advantages of the rotary camera is its speed and simplicity of operation. Imagine a mimeograph machine with a sheet of paper being fed in one side, going around on a drum, receiving the stencil's imprint, and coming out the other side. This is somewhat like the operation of a rotary camera, except that the documents go around on a belt until they pass an aperture through which they're filmed. They come out again, but on the same side they went in and in the same order as inserted, neatly stacked in a tray. Roller feelers make sure that two documents do not go in at once.

Rotary cameras are the simplest to operate. They require no knowledge of photography or lighting. They're as easy to use as an office duplicating machine. Their main disadvantage is their limit as to the size and thickness of sheets they will take. They are best suited for filming letter-size sheets, but will accept (some models) sizes up to 14 inches wide. Only one sheet at a time can be fed through, albeit as fast as the operator can feed it, and all clips and staples must be removed. Rotary cameras are generally restricted to 16 mm film which means that anything up to 16 inches wide can be handled. A few rotary cameras accept 35mm film, and this means that sheets up to 35 inches wide would, theoretically, be accepted. Anything larger than 35 inches in width must be handled by a planetary camera.

The important extras offered by rotaries are their ability to make duplicate rolls of film at once, as mentioned before, and the variety of film patterns available. Ordinarily, single documents are filmed across the entire length of 16mm film. However, it is possible, by using the 8mm principle with 16mm film or a high reduction ratio, to fit that same document on only half the width of the film, enabling two separate tracks of documents to be fitted on a single film. When documents are ámed in this way, up one side of the film width and down the other, it is called "duo" filming; when both sides of a document are filmed simultaneously (it's done with mirrors) and fitted side by side across the film's width, it's called "duplex" filming. Both these variations allow twice as many documents to be placed on a roll of film and that, of course, means greater economy. But since it is ac-

Facts About Some Major Microfilm Cameras

MANUFACTURER	MODEL	TYPE*	SIZE (HxWxD)	FILM WIDTH (mm)	FILM** PATTERN	MAXIMUM COPY SIZE***	REDUCTION RATIO	FEATURES
BELL & HOWELL (Distributor: BURROUGHS)	BH 205-G	R	33" x 32" x 23"	16	Duo, Duplex	11"	44	High-speed feeder accepts documents as fast as operator can feed them; feed control adjusts thicknesses, rejects too-thick sheets or two sheets stuck together.
BELL & HOWELL (Distributor: BURROUGHS)	BH 205-F	R	42" x 32" x 22"	16	Duo, Duplex	11"	44	Combines reader and camera on one chassis; separate index for reader; uses single lens for both reading and photography, adjustable at the turn of a knob.
DOCUMAT	PFA	R	37¼" x 24¾" x30¾"	16	Duo, Duplex	9⅜"	34½	Chime and light indicator shows when film reel is empty, or when only three feet of film remain on the reel; index pins prevent wrong side insertion of reel; opening film door disengages film supply indicator. Camera can be operated with film door open to inspect film advance.
DOCUMAT	F16	P	37¼" x 24¾" x30¾"	16	Standard	9⅜"	16	
KEUFFEL & ESSER	Micro-Master 105/35mm	P	11'2"x8'6"x7'1"	105, 35	Standard	42"x64"	105mm— 3, 11 35— 8, 30	First combination camera-projector for both 35 and 105mm film; light source automatically regulated for best detail; quick-loading film magazines.
KEUFFEL & ESSER	Micro-Master 35mm	P	10'6"x94"x64"	35	Standard	42"x64"	10, 30	Pyramid-shaped column eliminates vibration; fluorescent lighting replaces heat-generating floodlights; new, attractive styling.
MICRO	X-Ray Recorder	P	39"x26½"x33"	35	Standard	10"x12", 16"x19"	10, 17	Especially suited for hospital use; makes positive reversal films of X-rays, 2 x 2 film slides in color. Can be used for ordinary documents as well.
PHOTOSTAT	Model 42	R	41¾"x52"x20"	16, 35	Standard	42"	35, 30, 24, 20	Microfilms and enlarges microfilmed copy; warning light tells when film supply is exhausted; reverse drive returns crookedly fed copy before exposure.
PHOTOSTAT	Portable	R	(open) 12"x13¼"x23" (closed) 12¾"x13¼"x5½"	16	Standard	11½"	22½	Weighs only 21 lbs.; films at rate of 83' per minute; accepts rumpled, dog-eared, stapled copy without stopping; rapid magazine loading.
PHOTO DEVICES	PD 1100	P	54" x 57" x 31"	35	Standard	14"x17"	16, 20	Motorized lens carriage; illumination controlled for exact selection in color photography; copy held flat and wrinkle-free through suction; magazine loaded.
PHOTO DEVICES	PD 105C	P	10' x 9'4" x 67"	105	Standard	40"x60"	3, 10	Removable take-up magazine with cut-off knife permits removal of one exposure or several feet of film without fogging unexposed film.

PHOTO DEVICES	PD 1100	P	54" x 57" x 31"	35	Standard	14"x17"	16, 20	*Motorized lens carriage, illumination controlled for exact selection in color photography; copy held flat and wrinkle-free through suction; magazine loaded.*
PHOTO DEVICES	PD 105C	P	10' x 9'4" x 67"	105	Standard	40"x60"	3, 10	Removable take-up magazine with cut-off knife permits removal of one exposure or several feet of film without fogging unexposed film.
EASTMAN-KODAK (Distributor: RECORDAK)	MRC-4	P	10'2"x8'x4'1½"	16, 35	Standard	37½" x 52½"	12, 30	Electric motor automatically operates shutter, advances film, and actuates vacuum platen to hold film in focal plane during exposure.
EASTMAN-KODAK (Distributor: RECORDAK)	MRD-1	P	8'6"x6'x2'10"	16, 35	Standard, Duo	26"x36¾"	5, 21	Integrated controls eliminate separate unit, cables; level of illumination controlled through variable transformer; split-field range finder.
EASTMAN-KODAK (Distributor: RECORDAK)	Portable	P	6½"x15½"x12½"	16	Standard	12"	20	Weighs less than 24 lbs., comes with carrying case; documents are fed and returned in original sequence; can expose two rolls of film at once for security.
EASTMAN-KODAK (Distributor: RECORDAK)	500	R	17"x24"x25¼"	16	Standard, Duplex, Duo	12"	40, 32, 24	Kodamatic indexing places coding lines directly on film for rapid location on reader; self-adjusting-feeder prevents overlapping sheets from going through.
EASTMAN-KODAK (Distributor: RECORDAK)	RM-1	R	29½" x 25" x 26"	16	Standard, Duplex, Duo	12"	40, 32, 24	Exposes two rolls of film simultaneously; audible and visible alarms assure the correct functioning of the machine or film unit.
GRISCOMBE (Distributor: REMINGTON RAND)	F 36.1PL	P	10'2"x85"x62"	35	Standard	37½"x52"	12, 30	Motor-driven camera head electrically positions for varying reductions; foot control switch; films two open facing pages of bound book in one shot.
GRISCOMBE (Distributor: REMINGTON RAND)	F 4	P	35½"x20"x24½"	16	Standard	11"x17"	21	Especially suitable for filming bound books, stapled material, magazines; without removing individual pages or unstapling sheets.
REMINGTON RAND	Abstracter 1100	P	48"x49"x29"	16, 35	Standard, Duplex	20"x24"	16, 20	Films both sides of a single sheet, facing pages of a bound book, records them side-by-side across film. Optional attachment for 16 or 35mm film.
REMINGTON RAND	Champion	R	10½"x19¼"x19½"	16	Standard, Duplex	12"	19, 25 (16mm), 40 (8mm)	Optional device for high-speed feeding; records retain their original sequence; "Color-Stat" control varies exposure light for different conditions.
REMINGTON RAND	Aristocrat	R	17"x23"x25"	16	Standard, Duplex	12"	25, 35, 42	Films both sides of a sheet at the same time placing images side-by-side across film; "Color-Stat" exposure control.

* R - Rotary; P - Planetary
** See section on cameras for explanation of terms
*** Where only one dimension is given, it refers to the width; the length is, theoretically, unlimited

complished through greater reduction in size, this can mean decreased legibility. You pays your money and you takes your pick.

Another advantage of rotary models is their relatively small size. Most are easily accommodated in the average office and some are even portable, allowing field auditors, for instance, to pack up their camera in its matching case and do microfilming wherever there's a suitable electrical outlet. Lastly, rotary cameras cost less than planetary types.

Planetary cameras. The planetary camera has been called the workhorse of microfilming. It can handle anything the rotary camera can plus documents which are too large or too thick for the rotary. It is, therefore, ideal for filming engineer's drawings, blueprints, maps, and books without having to remove the pages. Planetary cameras usually use 35mm film but there are models which use 70mm and even 105mm film. Unlike the rotary, planetary models can only film one object at a time since each object must be placed on a bed and the camera raised or lowered on a column for the best exposure. Operation requires somewhat more of an understanding of the photographic process, but not so much that the average worker cannot master it in short order.

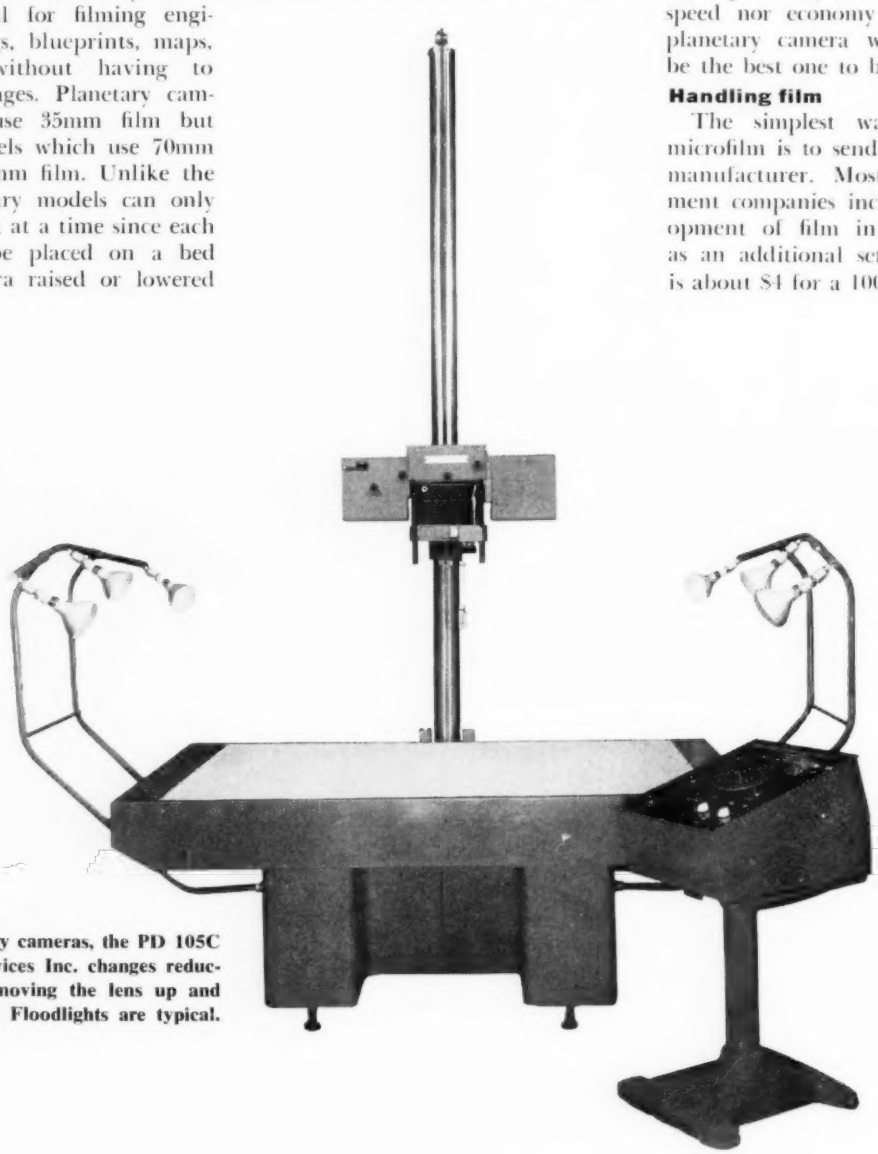
Proper illumination is important and large banks of flood or fluorescent lamps are part of the equipment. This is important because different documents demand different lighting; the same lighting that is suitable for hand-written documents will not do for printed material. Therefore, if your particular records consist of a variety of writ ten, typed, printed, or drawn material, the planetary camera would be more suitable than the rotary, although the rotary, too, has adjustable illumination, but nowheres near the variety of the planetary.

But the planetary also has its disadvantages. Since the change of reduction ratios depends on the distance of the camera from the document, considerable leeway must be given the camera lens for moving closer to or further from the flat bed. This means a column up and down which the camera lens travels. Some of these columns are more than 10 feet high, which could prove too much for some offices. In such a case, the camera would have to be located in the cellar, perhaps, or in a separate section of the building where the ceiling is high enough. Needless to say, planetary cameras are not exactly portable.

If the choice is between a rotary and a planetary camera, and neither speed nor economy are vital, the planetary camera would probably be the best one to buy.

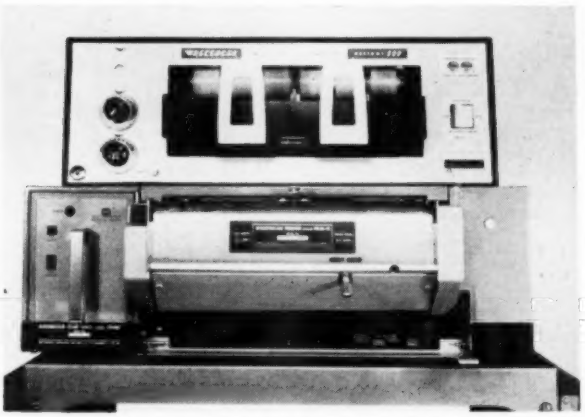
Handling film

The simplest way to develop microfilm is to send it back to the manufacturer. Most large equipment companies include the development of film in their cameras as an additional service. The cost is about $4 for a 100-foot roll. Out-

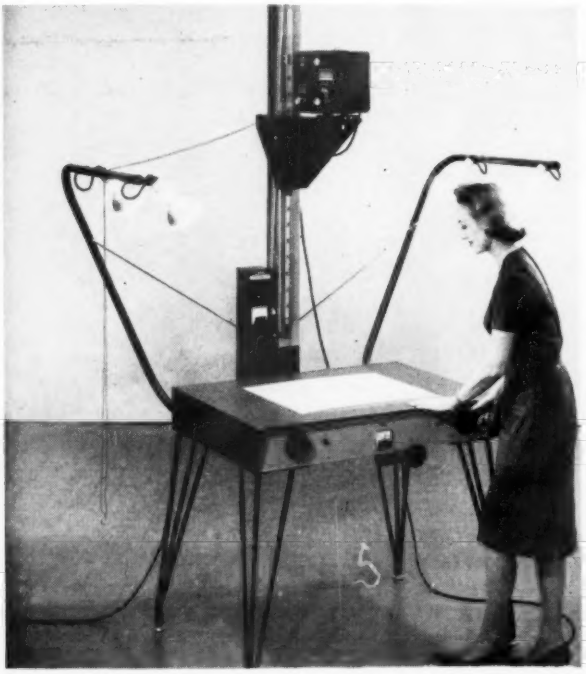


Like all planetary cameras, the PD 105C from Photo Devices Inc. changes reduction ratios by moving the lens up and down a column. Floodlights are typical.

Remington Rand's Champion rotary camera is simple enough for anyone in an office to operate. It uses 16mm film which can be loaded in daylight. "Color-Stat" controls exposure light for best results.



The Reliant 500 is made by Eastman Kodak, distributed by Recordak Corp. Documents may be filmed at 1800 inches a minute and a choice of reduction ratios permits standard, duo, or duplex filming.



Model MRD-1 planetary camera is also distributed by Recordak. This is one planetary that has all-integrated electric controls, eliminating the need for separate units or connecting cables.

Bell & Howell's BH 205-F is a convenient combination of rotary camera and film reader. Distributed by Burroughs Corp., this model is available for purchase or for rental by the month.

side processors charge about $7.00. For the average user, this is far cheaper than setting up an in-company film-printing installation.

If the volume of filming grows to such an extent that in-plant processing becomes necessary, the latest printing equipment is designed to make it as simple and fast as possible. Films may be printed in negative and positive form. For some processors, there must be a convenient source of hot and cold running water.

Printing extra copies of microfilms has been reduced to the push button stage. The simplest method is the reader-printer which combines a reader and a copy machine in one chassis. Whatever you see on the screen can be copied in seconds at the push of a button. Actually, any reader can be used as a printer with the use of sensitized paper, but reader-printers are fastest and easiest. Units for printing copies from aperture cards are almost as simple to use, and the cost of each print is so low that they may be discarded after they have served their purpose. These printers work on the continuous flow principal whereby the cards or rolls are fed in one end and emerge at the other at a rate of about 20 linear feet per minute. If many prints are needed of only one image, the machine may be preset for as many as 400 reproductions of any frame contained in an aperture card. Copies may be as big as 2 by 3 feet and, because the duplicating process is an electrostatic one rather than one involving liquid developers, the

Facts About Some Major Microfilm Readers

MANUFACTURER	MODEL	SIZE (HxWxD)	SCREEN SIZE	FILM WIDTH (mm)	MAGNIFICATION RATIO	FILM ADVANCE	AUTOMATIC COPY-PRINTER	FEATURES
BELL & HOWELL (Distributed by BURROUGHS)	BH 205-F	42" x 32" x 22"	10½" x 8"	8, 16, 35	24, 44	Motor	No	Combines reader and camera on one chassis; separate index for reader; uses single lens for both reading and photography, adjustable at the turn of a knob.
BELL & HOWELL (Distributed by BURROUGHS)	BH 206	21" x 10½" x 13"	8½"x11"	8, 16	24, 37	Motor	No	Rotating turret permits 360-degree viewing, enables document to be seen right side up even if photographed upside down on film; indexing meter for copy location.
DOCUMAT	Model "U"	24"x13"x16¾"	24"x13"x16¾"	16, 35	15, 24, 34½	Manual	No	Reads both roll and unitized film; 360-degree turret rotation; film passes through glass guides which hold film flat; nylon rollers for alignment of film.
DOCUMAT	Reader-Printer	26"x13"x30"	26"x13"x30"	16, 35	15, 24, 35	Manual	Yes	Reads roll and unitized film; automatically prints 7x9¼ prints on 8½x11 sheet, total printing time 45 seconds; copies on non-fade sensitized paper.
MICRO	PV-501	10½"x14"x12½"	18"x24" (Projection screen)	35 (2"x2" slides)	18"x24" (screen)	Motor, Manual	2"x2" slides	Will make microfilms of X-rays, lab specimens in black and white or color; makes 2"x2" slides for viewing or projection; microfilms ordinary documents.
MICROREADER	Microskaner	2"x1½"x6¾"	1½" lens for 20X magnification	Any	20	Manual	No	Small hand scanner ideal for reading microfilm anytime, anywhere; can be carried in pocket; penlight batteries provide field illumination; precision lens.
MINNESOTA MINING & MFG. (THERMO-FAX)	Filmac 100	24½"x16"x19"	8½"x11"	16, 35	7, 9, 13 19, 26, 32	Manual	Yes	Reads and makes 8½x11 prints of roll or unitized film.
MINNESOTA MINING & MFG. (THERMO-FAX)	Filmac 200	32"x31"x36"	18"x24"	35	15	Manual	Yes	Reads film and makes 18"x24" or 12"x18" prints.
MINNESOTA MINING & MFG. (THERMO-FAX)	Filmac 300	26"x21½"x46"	11"x14"	16, 35	8-20	Manual	Yes	Reads roll and unitized film and makes prints up to 11" wide and any length up to 14"; accepts both 8½" and 11" wide rolls of print paper.
PHOTOSTAT	Autofocus	24½"x19⅝"x 32⅛"	14"x14"	16, 35	23, 36	Motor	Yes (optional)	Reads negative or positive films, perforate or non-perforate; changes magnification without losing focus; optional printer attachment makes prints up to 8"x10".
PHOTOSTAT	12-12	22"x13½"x14½"	11½"x11½"	16	24	Manual	No	Weighs only 19 lbs.; designed to be used with Photostat 12-12 camera; 360-degree rotating turret; enlarges to original size when used with

PHOTOSTAT	Autofocus	24½"x19⅝"x 32⅛"	14"x14"	16, 35	23, 36	Motor	Yes (optional)	perforate; changes magnification without losing focus; optional printer attachment makes prints up to 8"x10".
PHOTOSTAT	12-12	22"x13½"x14½"	11½"x11½"	16	24	Manual	No	Weighs only 19 lbs.; designed to be used with Photostat 12-12 camera; 360-degree rotating turret; enlarges to original size when used with 12-12 camera.
EASTMAN-KODAK (Distributed by RECORDAK)	Lodestar	25" x 16½" x 29"	13½" x 13½"	16	23	Motor	No	Magazine loading; insertion of magazine automatically turns on lights and film motors; film stops automatically before end of roll; coding scale on side.
EASTMAN-KODAK (Distributed by RECORDAK)	Starlet	21½"x14"x19½"	12"x10⅞"	16	20	Motor	No	Single-lever control of film travel—start, stop, and direction; rewinds 100-foot roll of film in 16 seconds; accepts roll or unitized film.
EASTMAN-KODAK (Distributed by RECORDAK)	310	19½"x16"x11½"	9"x12"	16	20, 24, 32, 40	Manual	No	Green-tinted screen; 90-degree rotating turret; weighs 23 lbs., can be easily moved; model 310A has 270-degree rotating turret.
EASTMAN-KODAK (Distributed by RECORDAK)	MPC-1	62½"x28"x23¾"	18"x18"	16, 35	12-23	Manual	No	Reads roll or unitized film; accessory shelf for taking notes; 360-degree rotating turret.
REMINGTON RAND	F 077	18"x17¾"x28¼"	14½" x 14½"	16, 35	23-40	Motor	No	For roll film only; casters permit easy rolling for relocation.
GRISCOMBE (Distributed by REMINGTON RAND)	F 70	27" x 13" x 19"	12"x12"	16, 35	17, 24, 30, 43	Motor	No	For unitized film; weighs 32 lbs., can be carried; non-reflective screen.
GRISCOMBE (Distributed by REMINGTON RAND)	F 71	29¼" x 16½" x 19¼"	14"x14"	16, 35	15, 20, 24, 30, 43	Motor	No	For unitized film mounted in jackets or aperture cards; table-top model.
GRISCOMBE (Distributed by REMINGTON RAND)	F 72	29¼" x 16½" x 19¼"	14"x14"	16, 35	15, 20, 24, 30, 43	Manual	No	For roll film; lenses easily changed for five different degrees of magnification.
GRISCOMBE (Distributed by REMINGTON RAND)	F 73	12" x 12" x 12"	14"x14"	16, 35	17, 23, 30, 43	Manual	No	For roll film; can be used as viewer and projector; projects images on any light-colored wall.
TAYLOR-MERCHANT	Pocket Reader	5" x 2¾"	10X lens	Any	10	Manual	No	Pocket microfilm reader; can scan film horizontally and vertically; folds flat (¼"); can be carried in shirt pocket; accommodates IBM aperture cards.

copy emerges dry and ready for use.

Once films are developed, the user has three basic choices of how he will store them. The usual way is on 100-foot rolls, but this can be inconvenient when there is material to be added to a record, especially one in the middle of a roll. Then the addition must be spliced in. If information is referred to constantly, roll film can be impractical because it takes time to run through an entire roll just to view a single image somewhere near the end.

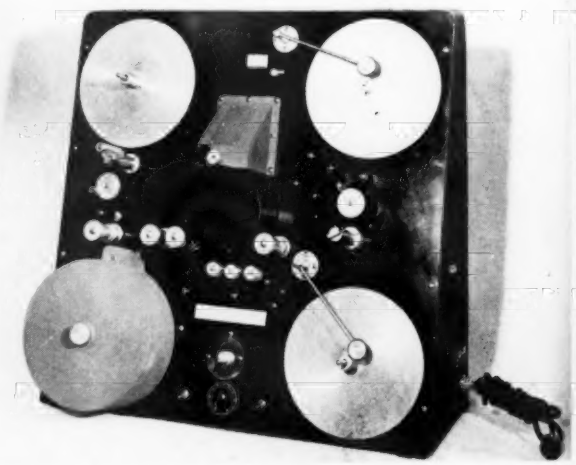
Film aperture cards solve both of these problems. When certain images must be referred to again and again, it is advisable to mount them on an aperture card which has a small window cut into it so that when the card is inserted into a reader, the light may pass through the window and the image and project it on the screen. This card combines the convenience of a punched data processing card with the advantages of having the information attached to it. They may be sorted, tabulated, and grouped like any other punched card.

Aperture cards have one disadvantage . . . they hold a relatively small amount of information per card and it is inadvisable to staple two of them together.

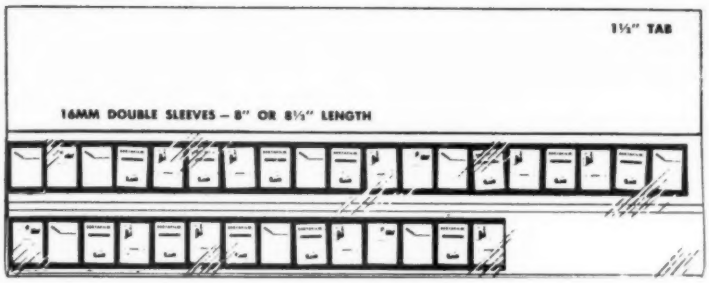
The film jacket is one way to combine easy availability plus large capacity. Each jacket holds a considerable number of film images held between clear acetate sheets with a permanently affixed tab for labeling. These jackets may be filed just like cards. By cutting frequently-used images from a master roll and inserting them into film jackets, they are always ready for

The Haloid Copyflo continuous printer operates on the electrostatic principle using the attraction of electrically charged particles to deposit a powder-image on paper, then baking it in. Operation turns out positive microfilm copies at the rate of 20 linear feet a minute. This machine is quite expensive to purchase, however, they can be rented by the month.

Minnesota Mining & Mfg. makes the Filmsort card-to-card printer. Prints up to 2000 copies of card mounted film an hour. The process is dry and can be done in ordinary room light. This is one of the least costly ways of duplicating large documents.



A contact printer can be used to make positive copies from negative film, and, since positive film costs about half as much as negative, this is an economical way to make duplicates. Positive prints also protect the original film from wearing. *(Photostat Co.)*



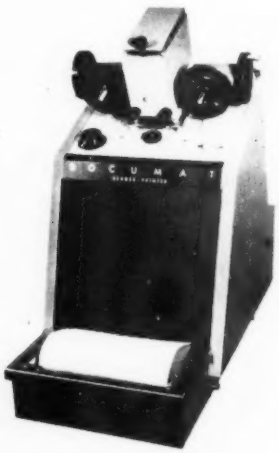
This clear acetate film jacket from the Sertafilm company of Philadelphia is just one model in a wide variety for holding films 16mm to 105mm wide. Note the wide tab.

instant viewing. What's more, film jackets can hold groups of images of different sizes. 16mm and 35mm film clips can be integrated. And because they are inserted individually, they can be added to at any time, in any order, and they are always sure to be right side up.

Both rolls and aperature cards fit readily into most readers. Film jackets, while they are meant to be used with a reader of their own, can be inserted into regular models without difficulty, and because of their transparent jackets, they can be processed in copy-printing units.

The microfilm reader

Microfilm, by its very nature, cannot be read with the naked eye. After reduction it must be magnified in some way. This is the job of the reader. Just as cameras offer a choice of reduction ratios, so do readers offer a choice of mag-

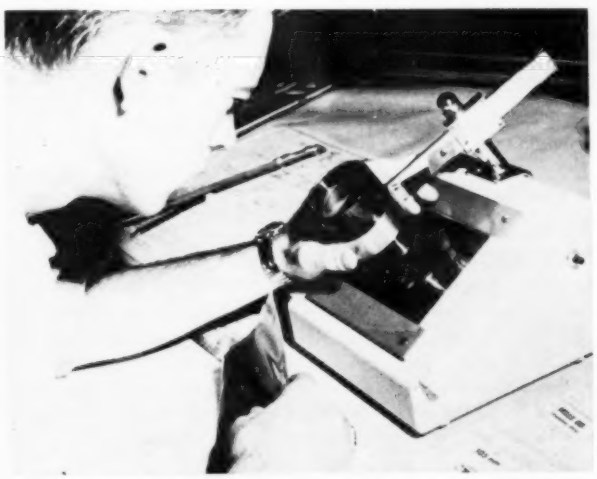


Documat's Reader-Printer produces prints at the push of a button. Copies are 7x9½ inches, are delivered cut and dried.

No need to thread film with the Lodestar from Recordak. Film magazine is inserted simply, turns machine on.

Bell & Howell BH 206 reader permits reading of 8, 16, or 35mm film; has 360-degree rotating turret, indexing meter.

The Filmac 300 from Minnesota Mining & Mfg. is another reader printer which will deliver copies up to 11x14 inches. This model will accept 16mm and 35mm film on 100-foot rolls or mounted on aperture cards. Note the image sharpness.



Keuffel & Esser's Micro-Master scanner is meant for 105mm film. Negatives are illuminated from beneath by fluorescent lighting through an opal glass panel. Lens moves freely on scanning arm. Film this size cannot be handled in a regular reader.

Whenever the regular reader isn't handy, Taylor-Merchant scanner takes over.

The Remington Rand F O77 reader is for roll film viewing at high speed. Model has casters for easy moving about.

nification ratios. It is advisable that the reader have a magnification ratio equal to or larger than the reduction ratio of the camera with which it is used.

What to look for

When considering a reader, take into account the size and type of film it will hold. A 35mm reader will handle both 35mm and 16mm film; a 16mm reader will not handle 35mm film. If used with a rotary camera, some documents may be filmed on end deliberately in duo or duplex patterns, so look for some means to turn the image right side up. Some cameras permit a 90 degree rotation, some 180 degrees, and others a full 360 degrees. Since there's always the chance that records will inadvertently be filmed upside down, 360-degree rotation can be very handy.

Hand or motor film advancing can be very important where roll film is concerned. One of roll film's drawbacks is the necessity of running through most of a roll just to and a single frame. In such a situation, a motor-driven film advance can take over and run through the roll far faster than could be done by hand, saving a great real of time.

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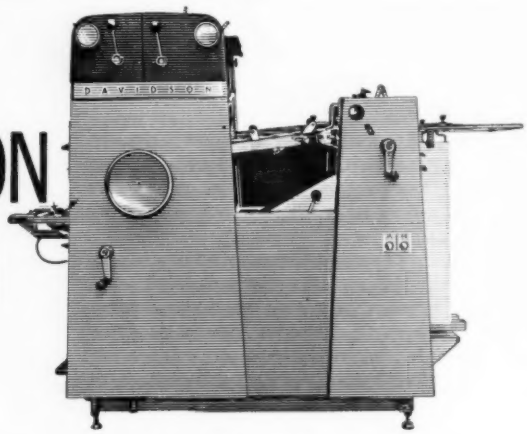

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Some sort of index scale is a must for every reader. Without it, searching for a single frame in a hundred feet of more than 2500 film images would be troublesome enough to wipe out all the retrieval benefits of microfilming. Some readers have circular indexes on the turret which turn as the film turns. Some have scales along the side of the screen which match up with line patterns on the film itself. Thus, one page in thousands of a microfilmed catalog can be found in seconds.

One of the most exciting developments in readers are the reader-printers which combine a reader with a duplicator. When a frame seen on the screen is to be duplicated, a mere push of the button delivers a dry, ready to use print in a matter of seconds, in sizes as large as the screen itself.

The simplest, least expensive, and the most portable of all readers are the little pocket models which can be used to quickly scan film strips or frames. Operation is simple. The lens is passed over the microfilm just as a magnifying glass would be. Some hand models have battery-powered light for field illumination. When microfilm must be read and there's no regular reader handy, these pocket-sized units are invaluable.

What will it cost?

In a discussion of microfilming costs, it must be understood that the most expensive part of the operation is not the equipment but the cost of labor to operate it. Therefore, any listing of prices would be far from an accurate barometer of total costs. There are to many variables to take into consideration in addition to equipment. The preparation of documents for filming, for instance, calls for the removal of clips and staples, smooth-out creases and folds, taping torn sheets, re-typing copy which is not sharp enough for filming, and, most important, putting the files in order. There's little sense in filming records that are disarranged; the films will only be disarranged, too.

To get some inkling of cost, at least of the technical end of the job, make an estimate of the number of sheets to be filmed and the average feed length. Using the formula on page 33, (see "Reduction Ratio" under "Terms") figure out the number of images per roll of film (the average roll is 100 feet or 1200 inches long). This will give you approximately the number of rolls you will need. Multiply this by $7.00, the cost of each roll plus developing. Figure out the cost of the equipment either by its rental fee if rented, or rate of amortization, if purchased, and add it to the cost of the film. Make an approximation of preparation time and add that on. Compare the results with the cost of space, procedural mailing costs, etc.

Price of equipment

Prices of microfilm cameras are spread over a wide range with planetary cameras being the more expensive of the two types. Planetaries start at about $1300, and go as high as $13,000. The in-between average is about $3-6,000. Rotary models are priced as low as $625 or so, and as high as $2600, depending on the extras. These prices are again misleading since the true cost of a camera must include the volume of operation.

Readers, too, range in price. There's a pocket scanner for less than $5.00 and another for $15.00. A basic roll film reader costs about $300. With such extras like rotating lenses, variable magnification ratios, electric film advance, etc., the price rises to as much as $1375.

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Reader-printers can cost as much as $3,600.

Film will cost about $7.00 per 100-foot roll including developing.

Aperture cards and film jackets are priced according to quantity bought. Good quality, three-row jackets with 3½" tabs for 16mm film will cost about $75 a thousand; aperture cards, about $40 a thousand. Film cabinets cost from $200 to $300.

If these prices seem high, consider the findings of a recent survey on microfilm savings. According to the report, companies using procedural microfilming reported savings of 50 per cent in billing; 60 per cent in machine equipment; 40 per cent in the number of customer complaints; and 50 per cent in overhead charges handling these complaints. With such savings, paying $3,000 for a camera hardly seems reckless.

Outside services

One of the most flourishing businesses today is the outside microfilm service. For companies whose volume is too small, or filming too sporadic to warrant setting up their own installation, microfilm processors can offer a valuable service. Processors will pick up and deliver records; develop, inspect, and index film; make duplicates; store film under optimum conditions; and even sell you an insurance plan against loss or destruction of records. Their personnel are experts in the field and offer a free survey and estimate of costs just as equipment distributors do.

The manufacturers

Following is a list of the principal manufacturers of microfilming equipment and suppliers of microfilming services. Circle the appropriate number on the Reader Service Card for more information.

Ana-Tec, Inc., 2054 Granville Avenue, Los Angeles 25, California **(T-1)**

Andre Debrie Mfg. Co., 14-29 112 Street, College Point 56, New York **(T-2)**

Andrew Paper & Chemical Co., Box 528, Great Neck, New York **(T-3)**

Anken Chemical and Film Corp., Newton, New Jersey **(T-4)**

Photostat's Model 42 is a combination camera-enlarger for 16mm, 35mm film.

Atlantic Microfilm Corp., 50 S. Pearl Street, Pearl River, New York **(T-5)**

Bruning Co., Inc., Charles, 1800 W. Central Road, Mount Prospect, Illinois **(T-6)**

Burroughs Corp., 6071 2nd Avenue, Detroit 32, Michigan **(T-7)**

Dakota Microfilm Service, Vermillion, South Dakota **(T-8)**

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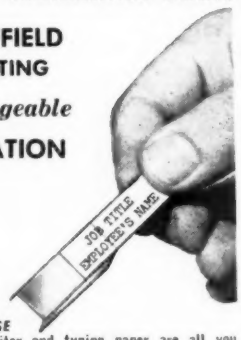
The COFFIELD EVERLASTING *Interchangeable* ORGANIZATION CHART



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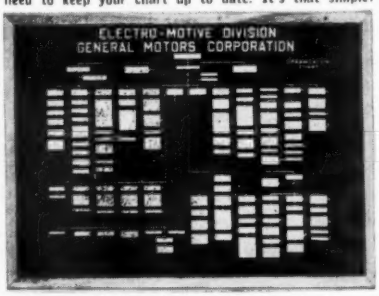

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(Circle No. 20 on Reader Inquiry Card)

De Fiorey Co., Inc., 200 Sloan Avenue, Englewood Cliffs, New Jersey **(T-9)**

Documat Inc., 385 Concord Ave., Belmont, Massachusetts **(T10)**

Durst (USA), Inc., 1400 Broadway, New York 1, New York **(T-11)**

Eastman Kodak Co., 343 State Street, Rochester 4, New York **(T-12)**

The Filmsort Co., Division of Minnesota Mining & Mfg. Co., Pearl River, New York **(T-13)**

Gateway Glass Co., Inc., 130 Main Street, La Crosse, Wisconsin **(T-14)**

Graphic Microfilm Corp., 115 Liberty Street, New York 16, New York **(T-15)**

Griscombe Prods. Corp., 133 W. 21 St., N. Y. C., New York. **(T-16)**

Haloid Xerox, Inc., P.O. Box 1540, Rochester, New York **(T-17)**

Houston Fearless Corp., 11801 W. Olympic Blvd., Los Angeles 64, California **(T-18)**

Hudson Photographic Industries, Irvington-On-Hudson, New York **(T-19)**

Kalvar Corp., 909 S. Broad Street, New Orleans 25, Louisiana **(T-20)**

Keuffel & Esser Co., Adams & 3rd Streets, Hoboken, New Jersey **(T-21)**

Microcard Reader Corp., 365-9 S. Oak Street, West Salem, Wisconsin **(T-22)**

Microfilm Corp. of Pennsylvania, 6116 Centre Avenue, Pittsburgh, Pennsylvania **(T-23)**

Micro - Photo, Inc., 1702 Shaw Avenue, Cleveland, Ohio **(T-24)**

Microreader Mfg. & Sales Corp., 2219 Summit Avenue, Milwaukee, Wisconsin **(T-25)**

Minnesota Mining & Mfg. Co., 900 Bush Avenue, St. Paul 6, Minnesota **(T-26)**

Nord Photocopy & Electronics, 300 Denton Avenue, New Hyde Park, New York **(T-27)**

Optics Mfg. Corp., Willard & Amber Streets, Philadelphia, Pennsylvania **(T-28)**

Ozalid, Division of General Analine & Film Corp., 13 Ansco Road, Johnson City, New York **(T-29)**

Peerless Photo Products, Inc., Shoreham, L. I., New York **(T-30)**

Photo-Devices, Inc., 33 Litchfield Street, Rochester 8, New York **(T-31)**

Photostat Corp., 1001 Jefferson Road, Rochester 3, New York **(T-32)**

Prestoseal Mfg. Corp., 37-27 33rd Street, Long Island City, New York **(T-33)**

Recordak Corp., 415 Madison Avenue, New York 17, New York **(T-33)**

Remington Rand, Division of Sperry Rand Corp., 315 Park Avenue, S., New York 10, New York **(T-34)**

Rogers Publishing Co., 800 Acoma Street, Denver, Colorado **(T-35)**

Sertafilm Service & Equipment, 105 N. Fifth Street, Philadelphia, Pennsylvania **(T-36)**

Taylor-Merchant Co., 48 W. 48th Street, New York, New York **(T-36)**

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Quickly shreds newspapers, magazines, waste paper, corrugated cartons, etc., into uniform resilient strands ideal for packing purposes. Especially adapted to shredding confidential records, blueprints, etc. Built in 5 sizes: 200 to 3,600 lb. per hour.

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An Instantaneous Low Cost Photographic Process With Unbelievable Quality! No Darkroom Needed! Holds 240 Line Screen — No Fill! Sheet or Roll Paper Stocks For Every Purpose. Ideal For In-Plant Reproduction and Graphic Arts Departments. So Simple To Operate!

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(Circle No. 8 on Reader Inquiry Card)

SCHOOLS CAN SAVE SPACE WITH MICROFILM

By JAMES W. CARRUTH
Director, Attendance and Visual Aids
Fayetteville, N. C. City Schools

Mr. Carruth, right, with Superintendent of Schools C. Reid Ross.

The editors of ADMINISTRATIVE MANAGEMENT *realize that an article dealing with a public school system is somewhat off the magazine's beaten path; but it is, nevertheless, an excellent account of how procedural microfilming can effect great savings in storage space, labor, and the number of errors inherent in hand copying.*

LACK of adequate storage space is a serious problem in almost any public school system. A given storage area can seldom expand at the same pace as the ever-increasing student enrollment.

There are two possible solutions to this problem: You can look for more space to store more filing cabinets — or you can reduce the size of the records. We at Fayetteville have turned to microfilm, or the latter alternative, as the most practical and economical solution. We reached the decision after filling a poorly-light basement room with row upon row of filing cabinets. The aisles and working area in the room were getting smaller with each passing school term, and for a while, there seemed to be nowhere else to go.

In this room we have stored some 25,000 to 30,000 records of students who have at one time or another attended Fayetteville schools. These are only part of the student records kept in the city, for others still remain in high schools within our school system.

At the present time in Fayetteville, we have under construction a much-needed new school administration building which will house school office equipment and records. In planning this structure, City School Superintendent C. Reid Ross and I considered what facilities should be constructed for storage of school records. We estimated that at least 800 square feet of floor space would have to be provided to handle the storage of records that we already have on hand and for storage needs for some years to come.

But now, the introduction of the microfilming process to our school record system, consisting of an RM-1 Microfilmer with Kodamatic Indexing and a PL Film Reader, both by Recordak, has altered our plans for storage space in the new administration building. We have found that microfilming of records will reduce our storage space needs to such an extent that only 200 square feet of floor space will be needed for

this purpose in the new building. This amount of space will be adequate not only for the present and future storage of student and school records, but also for office areas, for microfilm equipment and for work areas.

We feel that the saving of space in the new building and the related saving in construction costs have already amounted to more than our investment in the microfilming equipment.

Superintendent Ross made the final decision about use of microfilm equipment, and he selected the Recordak microfilmer after considering various other types of microfilm equipment.

Our record requirements made it necessary for us to purchase equipment that could handle 12-inch copy and use two rolls of microfilm simultaneously. Our student records run about 12 inches wide as a maximum, and we require two copies of each record, since one copy will be held for transcription purposes, and the other will be placed in a permanent or security file.

We are impressed particularly by the index system used by Recordak. A card file is maintained and each card contains such essential information as the name of a particular student, the date his or her record was received and from whom, and an index number.

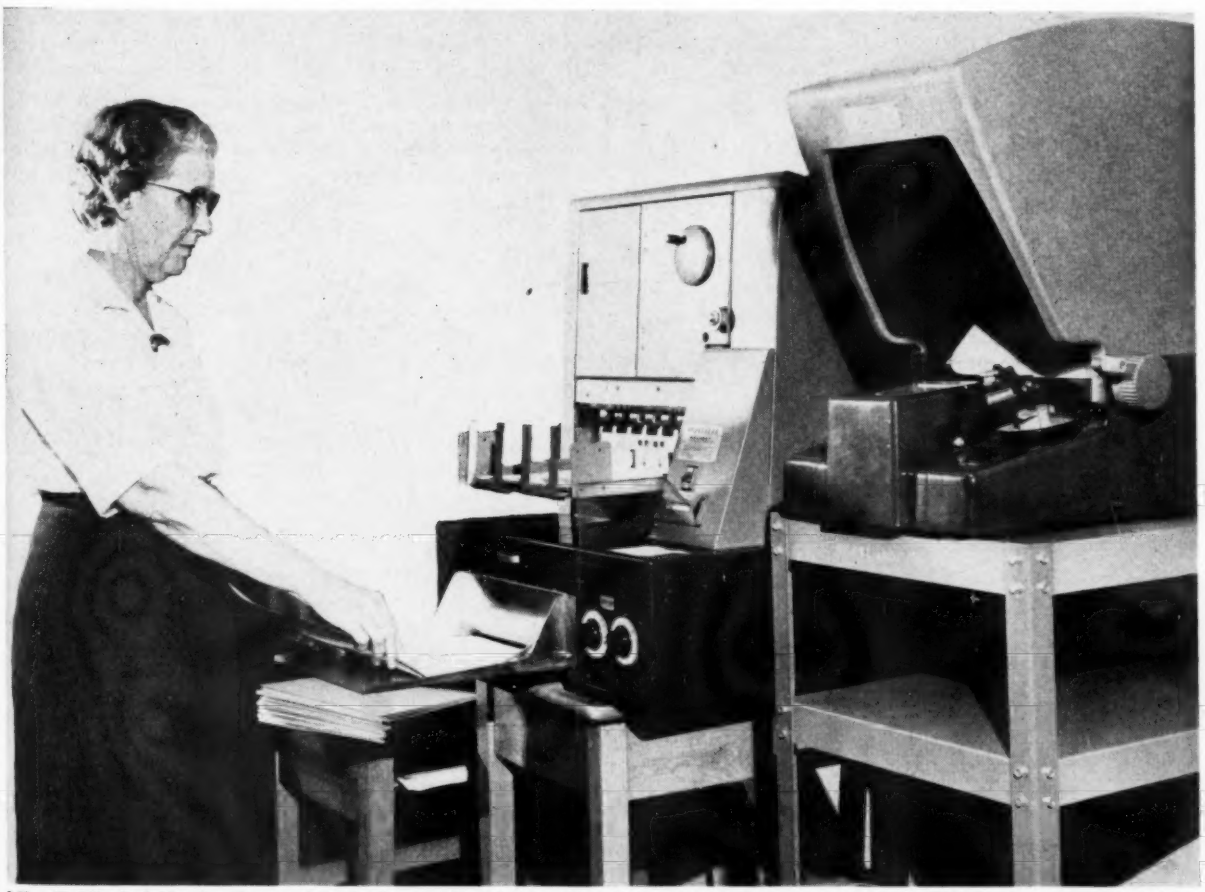
On a child's index card may be the number 1-078. This means that the child's records will be the 78th on reel No. 1 of the microfilm. Finding the record is a simple matter of running the reel through a machine until the Kodamatic Indexing registers 78. Then the desired information can be obtained from the record.

At the present time, we are engaged in putting on microfilm the thousands of pupil records filed in this office. On the average, we are able to get about 1,000 student records on every 100 feet of film.

Since we do not have personnel available to devote full time to microfilming the old records, we do this work only when our regular duties will permit. At present, we are transcribing about 2,000 records per month and using about 200 feet of film per month.

When our backlog of pupil records has been transcribed, we expect to use about 10 feet of film a day in the routine of the pupil records procedures. In addition to the thousands of students records that we have on hand and the daily transcriptions that are required for students who have left the system, we have large stores of other school records packed away in schools throughout Fayetteville. We plan to put some of these records on microfilm and thus cut down on the amount of storage space required in individual schools.

It is our opinion that the greatest



Miss Goldie Strickland, office worker, feeds a public school student's record into a Recordak Model RM-1 rotatry-type microfilm camera. The uniform size of the school record forms are ideal for this type of camera which works fastest when the material to be filmed need not go through extensive sorting as to size or thickness. At right, is a Model PL film viewer.

▲ **J. W. Carruth, right, and John E. Barkley are comparing an original form with the microfilmed copy. Mr. Carruth points out that one roll of microfilm contains the same amount of records that would otherwise fill a standard file cabinet. Microfilm has enabled the Fayetteville school system to reduce the size of planned storage space in a new building from 800 to 200 square feet.**

◖ **Mr. Carruth examines a student's record in a PL viewer. This particular model is hand driven, but others are motor driven and equipped to deliver large-size facsimiles at the push of a button. The image seen on a reader is ofter clearer and sharper than the original document.**

saving for Fayetteville schools in the microfilming of records is in the saving of space. But there are also major savings in time and labor in the transcription and handling of records.

Old methods of transcribing an average record of 7 to 10 items in this office by hand required about 30 minutes for each record. With the use of the new microfilm equipment, however, we are able to transcribe this record in 5 to 6 minutes and use only a few cents worth of materials.

An additional feature of the microfilm transcription process that is very important to us is the fact that transcriptions are obtained without the possibility of error. Exact duplicates of records are obtained whereas under old methods transcriptions were always subject to human error.

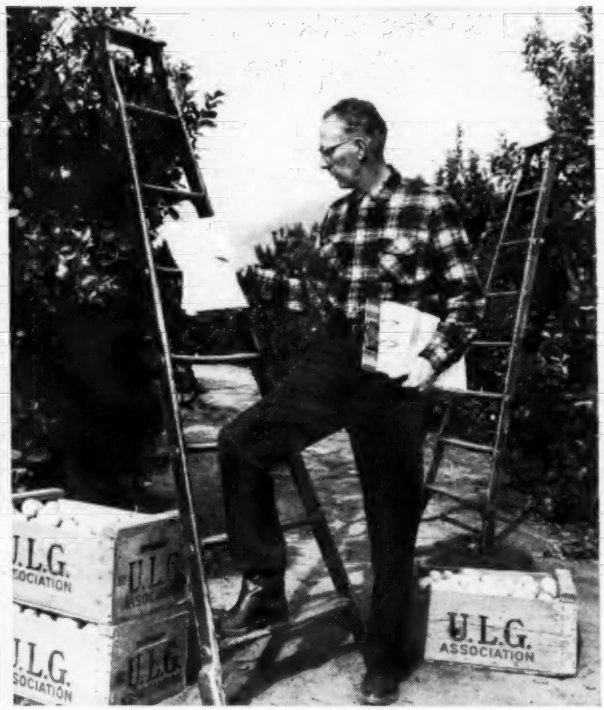
On the basis of our experience with Recordak equipment, we are highly optimistic about its use by the Fayetteville city school system in the future. We estimate that our entire file of student records, which now fills row upon row of files stacked in a 20 by 20 foot room, will be stored in an area about 9 by 12 inches in size in a desk drawer when they have been transferred to microfilm.

We see other advantages in the use of microfilm equipment and records on microfilm. In the past, most school officials have been reluctant to forward the record of students transferring to other schools to those schools. With the use of microfilm, however, student records can follow the students from school to school, since the schools they are leaving will retain microfilm copies of the records. This film will be available at any time for the production of any number of transcriptions the school might need.

Since microfilm makes a small, compact record system possible, we envision a records office in our new administration building that will contain the records of all schools in the city unit. Such a central record system would represent a saving of both time and money for city schools, since all questions about records could be handled at this one point, instead of being referred to various schools in the city.

Our experience with microfilm equipment has been highly satisfactory, and we recommend microfilming systems, particularly for such operations as the compiling, maintaining, and transcribing of voluminous records.

AT 5 P.M. a reduced-scale offset duplicating master of Sunkist's teletyped market reports is completed with Kodak Ektalith Processor, Model 20, (shown above) and process camera. Job took only 1½ minutes.



NEXT MORNING offset copies produced from Ektalith-made master are in hands of Sunkist packing house managers, and other field and district men. "Doc" Hasty of Upland Lemon Growers Association studies his copy.

Sunkist® cuts offset duplicating time and costs 50% with Kodak Ektalith Method!

Being able to make a high-quality offset paper plate in 1½ minutes helps speed communications on many jobs at Sunkist Growers, Inc., Headquarters in Los Angeles. Take one example:

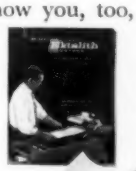
Each day Sunkist sales offices throughout the United States and Canada send a stream of teletypes to Headquarters giving local market conditions. Included are wholesale prices for Sunkist fruit, estimates on supply and demand, and other data which will help decide where fruit will be shipped and related marketing strategy.

It's important that the day's round-up of these teletypes go post-haste to Sunkist packing house managers, field inspectors, district exchange offices and executive staff at Headquarters.

No problems! Just another routine job for Sunkist's duplicating department with the Kodak Ektalith Method.

In three simple steps: *Expose . . . process . . . transfer* . . . a 60% reduced-scale offset master is made from a paste-up of teletyped data. Time . . . just 1½ minutes! Such speed and low-cost offset plate-making (less than 30¢ per paper plate) are utilized by Sunkist on a variety of jobs calling for anywhere from 25 to 500 duplicator copies. Work includes making reduced, enlarged or same-size plates from correspondence, research studies, minutes of meetings, traffic reports.

Quality of the Ektalith-made plates—and the copies made from them—is rated excellent by quality-conscious Sunkist organization.

New free booklet shows in detail how you, too, can save with Kodak Ektalith Method. Write Eastman Kodak Company, Photo Reproduction Products Division, Rochester 4, N. Y.

KODAK **Ektalith** METHOD ***...puts you ahead in offset duplicating***

Kodak TRADE MARK

(Circle No. 11 on Reader Inquiry Card)

Streamlining your operations?

INVEST IN SYSTEMS MEN FOR QUICK RETURNS

By JOHN HOCKMAN
Canadian National Railways

MR. EXECUTIVE, are you interested in an absolutely safe investment that will bring your company an annual return of 100%? If so, hire one capable systems analyst for every 100 office employees on your payroll and assign these men the task of studying and streamlining your operations. The time and costs saved by their recommendations will more than compensate for the salaries they are paid. Many companies have already discovered this to be true.

If you want an opinion on this suggestion, turn to your comptroller who probably has a few men working on systems and procedures. Ask him what these men have achieved in the way of savings and improvements during the past few months. Chances are you will be pleasantly surprised.

If their ideas have not been netting the company a dollar of tangible economy for every dollar put into systems studies, there is a fly in the ointment. You yourself may be at fault for not giving them enough management support and encouragement to investigate all phases of your operations, particularly routine clerical procedures.

There is much to be gained by systems studies of non-repetitive office activities unsuitable for mechanization. In this era of automation, it is possible for business organizations to spend thousands of dollars on time-saving EDP equipment and overlook the fact that hours are being wasted on inefficient clerical routines.

Until recently, one large corporation used a set of fourteen forms to record the results of machine maintenance inspections. Through a systems study, a single form was created to replace the set of fourteen. The most significant result of this time-saving change was not that the clerical work involved was lessened, but that the use of fewer pieces of paper made it much easier for management to refer to its maintenance records.

In another case, a company which had been typing out office records made a simple time study of the operation and found that it could be accomplished much faster by hand. This permitted management to reduce the size of the staff on this job. The excess personnel were transferred to vacant positions in other areas, thus eliminating the need for hiring new people.

A rapidly-growing organization eventually reached the point where a full-time clerk was needed just to make out purchase requisitions for maintenance supplies. Instead of creating a new position and hiring a new employee, management requested a quick systems study of the operation. Out of this investigation came a permanent set of single-entry requisitions that were shuttled back and forth between the stockroom and purchasing department. The need for a full-time clerk was eradicated.

It's possible that none of these three illustrations impressed you. If this is true, it may be due to the fact that no similar situations have existed in your company.

To move onto more common ground, let's concern ourselves with the area of departmental reports to management. You receive numerous reports in the course of a year. Do you know what each one costs

to prepare? If one cost double that you think, would you still call for it, or would you ask for less data?

If you don't know what a report costs, it may very well be more expensive than you estimate. And remember, you aren't the only one getting these reports.

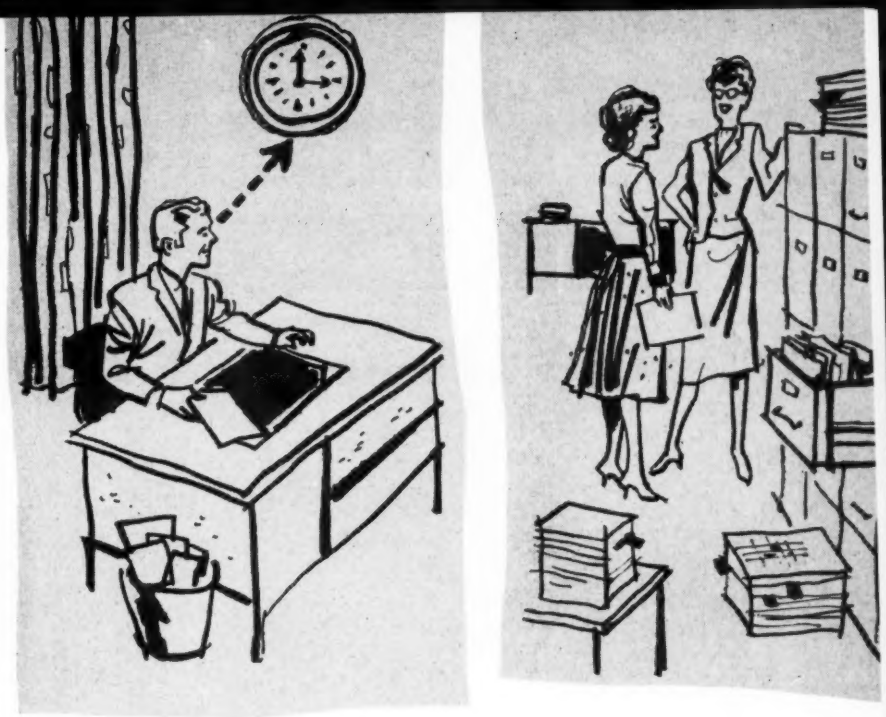
There might be a cheaper way for you to get the information you need. But, who is to determine this? The supervisors preparing the reports don't have the time in most cases. Their prime regard is departmental work flow, not reports. They cannot take the time out to study the efficiency of the report system.

Then, too, supervisors are responsible for producing work of quality, in quantity. They need enough workers to be safe and enough records to defend themselves if anything goes wrong. Only when they are assured of these will they be concerned with cost, and even then, their jobs will look less important if their staffs are reduced. They could hardly be expected to seek out labor-saving, cost-cutting methods of operation.

This is where the systems analyst enters the picture. His job is to devise improved methods and point them out to the supervisors. He is blamed if the new methods fail, but should not get the credit when they work. All credits should be reserved for supervisors putting new methods into operation. This will motivate them to support system changes.

In the proper order of things, systems men ought to be installed in business firms before automation devices. Companies purchasing new equipment and then hiring systems analysts to decide what the machines can do for the business are "putting the cart before the horse."

A more logical and profitable course would be to have systems men study the organization's nonmechanized procedures to decide how much improvement is needed and the most efficient way to accomplish it. In many instances, they will recommend the incorporation of electronic equipment, but in others, only procedural changes will be required. Just give them a chance and, they'll come up with the answers! ■



There is much to be gained by systems studies of routine office procedures

AM OFFICE DESIGN

ADMINISTRATIVE MANAGEMENT sponsors the "Office of the Year" awards given each year for the past 11 years to the nation's six leading new offices.

THE WHY'S AND HOW'S OF COMPANY LIBRARIES

By JOHN M. SINE

UNLIKE public and school libraries, a business library is not a storehouse of general knowledge. Rather, it is a collection of published information on topics related to a particular business enterprise. As such, a company library may be large or small, depending on the size of the organization involved and the scope of the firm's field of endeavor.

How does a business organization decide whether or not it needs a library? Well, questions like this might help:

1. Does management often delay decisions because of a lack of information?

2. Do technicians spend valuable time pouring over abstracts for their background data?

3. How much of the research done by executives and technicians is unnecessary because someone else has already done it?

4. When a man is assigned to a marketing research, public relations, or other project, how much time does he spend on preparatory research?

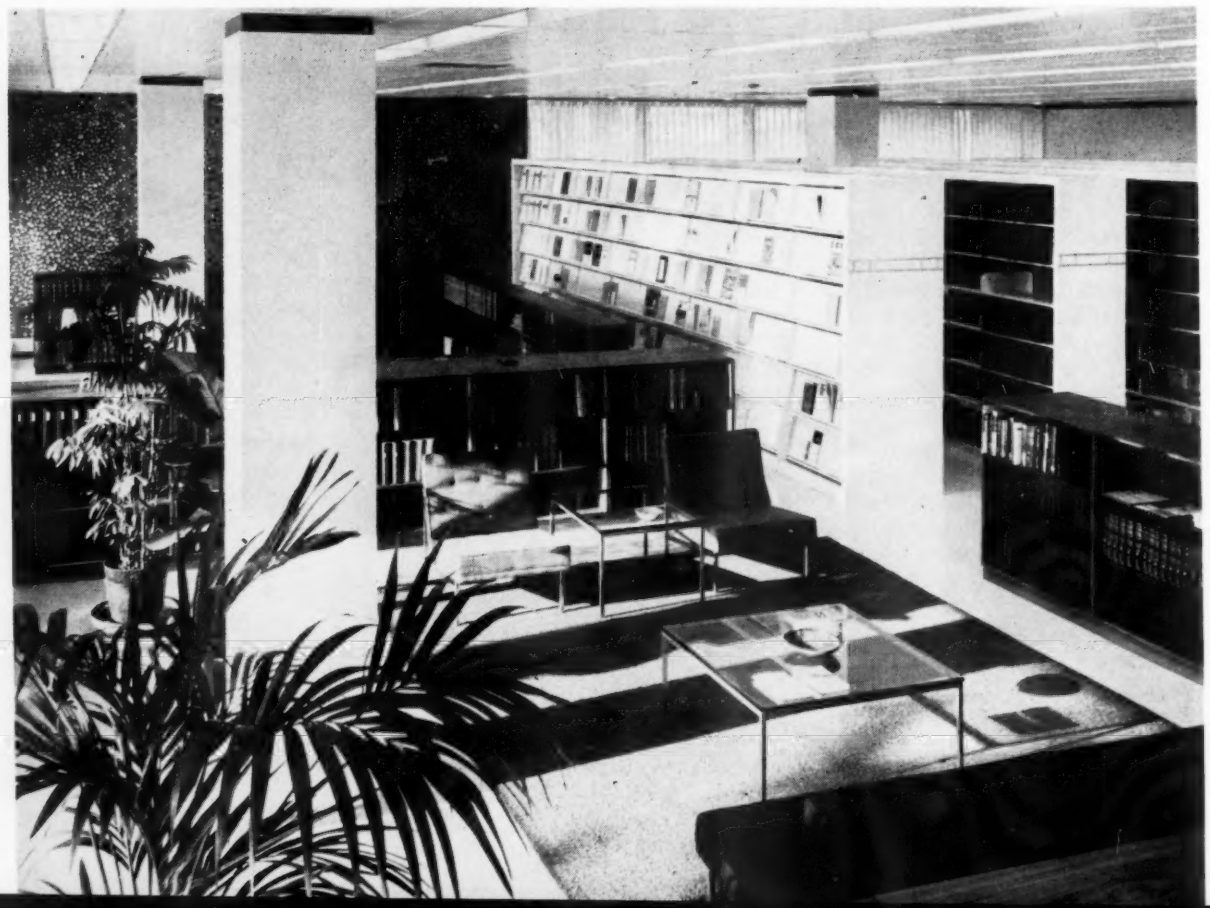
5. How often are junior executives and secretaries sent out to "look something up" in a local library? How long does it take them?

6. What is the cost of distributing multiple copies of business periodicals and little-used reports?

7. How much time and money do executives devote to telephoning around the country seeking information?

More directly stated, one of the major reasons why companies establish their own libraries is to save time and money by making needed information readily available. Other important motives are to eliminate waste and unnecessary

The handsome Parke Davis & Co. library in Ann Arbor, Michigan, was laid out by Baltazar Korab.



Paul Parker designed Philip Morris, Inc.'s law library in New York City.

Designs for Business created Time, Inc.'s extensive editorial reference library in New York City.

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(Circle No. 21 on Reader Inquiry Card)

AM OFFICE DESIGN

Librarian important

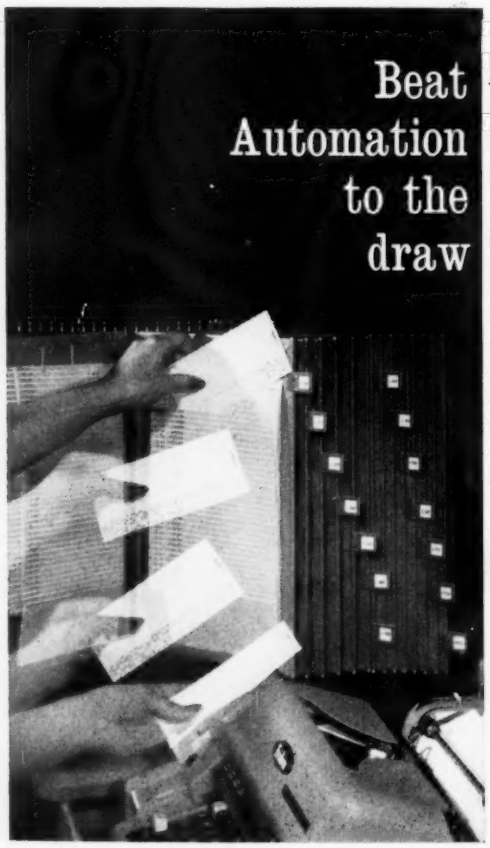
Remington Rand magazine racks grace Union Carbide's library.

duplication of records and to centralize purchasing of books and magazines.

Who should be responsible for the library's operations. The answer to this is simple. If at all possible, it should be a professional librarian. A specialist in literature organization and research can develop a book and records collection into an impelling center of information.

According to Marion Wells, librarian of the First National Bank in Chicago, "The business librarian not only gets the book which is

Beat Automation to the draw



Acme Super-Visible System lets operators find...feed...refile cards gunfighter fast!

Super-fast because it's Super-Visible. Keeps the identification edge of every card visible to the operator's eye, in quick-flip hinged aluminum frames. Cards slip out, slip back in a flash, faster than most machines can use them. Guarantees you the full productive power of your investment in office automation. To see how, send coupon today.

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Please give me facts showing how Super-Visible and other Acme Visible systems untangle the finding and filing snags in office automation.

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(Circle No. 2 on Reader Inquiry Card)

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■ 100% financing. ■ No down payment.

You don't have to strain your capital, increase your liabilities, or affect your credit lines or borrowing base —not with this Y&E Lease Plan. ■ Immediate modernization, of course. ■ Complete freedom from obsolescence, naturally.

We think this is a different lease plan from any you've ever seen for office equipment. It's not a conditional sales contract, like some. Nor is it a financing agreement, like others. *It is a true lease plan.* You pay up to 100% of your monthly cost out of pre-tax earnings instead of out of after-tax profits. ■ You pay one month in advance—a monthly charge which you may even want to accommodate in your maintenance budget, so you won't affect your capital position at all. ■ For some people, there are other, more subtle savings than we have space to talk about here. You may be one of the people. Call in a Y&E representative to talk. Or write us for a little pamphlet we wrote.

YAWMAN & ERBE
A STERLING PRECISION CORPORATION
1003 Jay Street, Rochester 3, N. Y.

Send me your Y&E Lease Plan pamphlet.

Name.....

Title..... Company.....

Street.....

City..... Zone..... State.....

(Circle No. 35 on Reader Inquiry Card)

expected to give the desired information, but also assembles and calls attention to related materials found in periodicals, special surveys, documents, and reports."

If a library is expected to sustain a heavy circulation of current materials, as well as basic references, the experience of a professional librarian will save the company money in the long run and increase the effectiveness of the operation.

Of course, some company libraries are just too small to justify the presence of a professional. In these cases, a conscientious clerical worker should be put in charge of the library. He, or she, should be intelligent and have an inquiring mind. This is no duty to assign to an irresponsible, disinterested person, if results are anticipated.

When the library is used mainly by one department, it can be treated as an extension of this unit. However, if it is designed to circulate information on a company-wide basis, it must occupy a spot where it can efficiently serve all departments.

In deciding upon a location for a company library, these factors must be kept in mind: *it should be accessible to users and also free from outside noises, machinery vibrations, and laboratory or food odors.* Of course, noise problems can often be eliminated by soundproofing ceilings and walls.

The shape and structural characteristics of the room selected, or built, will influence the basic layout of the library. A rectangular shape is best for a one-room library because it provides opportunities for both functional and attractive layout. Square rooms may necessarily have supporting columns that restrict flexible use of space. In multiroom setups, the shape of the area is less critical.

Straight walls offer maximum space and economy for shelving. They also permit future expansion. Movable partitions, especially those designed on modular principles, are ideally suited to the needs of an expanding library.

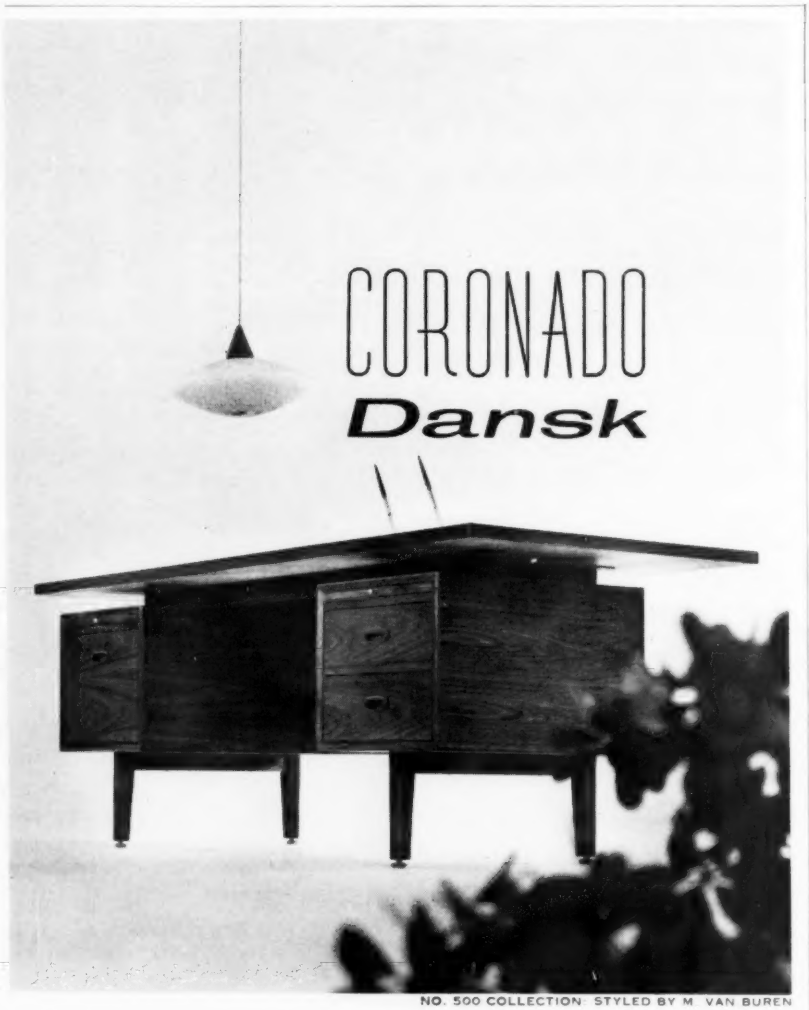
However, floor space can be modular and partitions movable, but if the shelves and racks are not equally flexible, the entire concept of design versatility is nullified. Therefore, library shelving must be purchased systematically.

These are the standard shelving sizes found to be the best suited to special libraries:

Height: 82 inches will supply six to seven book spaces.

or

42 inches (counter height) will supply three book spaces.



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MYRTLE DESK

ASK ABOUT THE CO-ORDINATED DECORATING SERVICE

(Circle No. 24 on Reader Inquiry Card)

Width: 36 inches (measured from center to center of supporting posts or divisions).

Depth: 8, 10, and 12 inches for single-faced shelving; twice these measurements for double-faced shelving.

Shelving requirements for special libraries usually call for more height and depth than standard shelves provide. Oversize shelves can be obtained, but the manufacturers usually need extra time to fill such orders.

Some of the factors which dictate what sizes shelves should be installed in a business library are: ceiling height, floor construction, and space needed for expected growth. The weight load of shelving and books together is commonly estimated at 110 to 140 pounds per square foot. This might affect the choice and placement of shelving in older buildings. In fairly uniform book collections, six to seven books occupy each running foot of shelving. Periodicals generally grow at the rate of seven inches per title per year. The average expansion rate for bound periodicals annually is four to five volumes per running foot of shelving.

Planning ahead for future expansion is an extremely important part of initial library construction because it is rare when an effective library does not grow in contents and services, regardless of its size at the outset.

A case in point

Take the case of the Union Carbide Corporation's new company library. Prior to 1960, when the firm moved into a new headquarters building on Park Avenue in New York City, there was no central library for all departments because the company's administrative offices were located in 14 different buildings throughout the city. While the new headquarters building was under construction, company librarian Jean Flegal began collecting material for a central library.

In office chairs, look for

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"Flo-Tork" tilt mechanism.

Hooded office-chair caster.

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Non-marking office chair casters. Floors are cleaner, and easier to keep clean, when your office chairs and furniture move on Bassick casters. They are easy rolling and easy swiveling, and stay quiet for the life of the chair.

These are just two samples of Bassick's broad line of casters, tilt-chair mechanisms, glides, rests and floor-protectors for office chairs, furniture and equipment. Look for the "Bassicks" on the chairs and equipment you buy. They mean extra value in comfort, reliability and life. 1.29A

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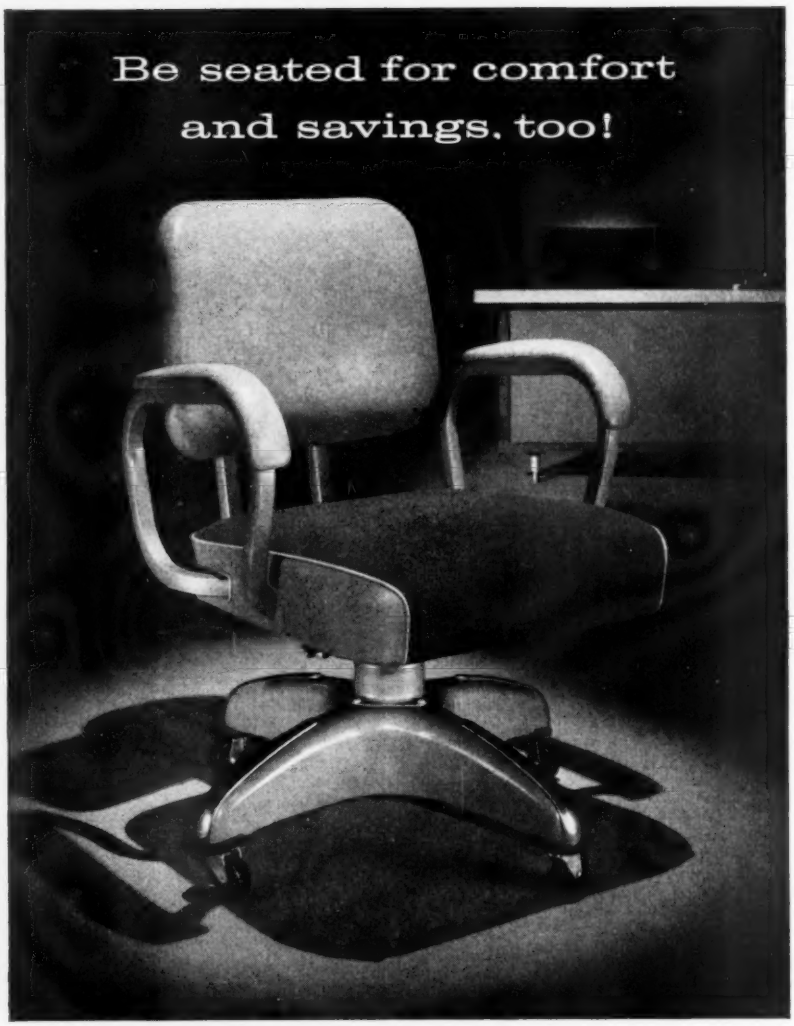

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Find your COSCO Office Furniture dealer in yellow pages of phone book, or attach coupon to your letterhead.

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Model 28-STA with all-Naugahyde upholstery, $67.95 ($71.95 in zone 2)

Model 25-S Secretarial Chair $42.95* ($46.95 in Zone 2)

Model 27-LA Conference Arm Chair $39.95* ($43.95 in Zone 2)

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(Circle No. 17 on Reader Inquiry Card)

"By the time we moved into the new library (*in the new building*), our staff had accepted ,catalogued, classified and prepared for the shelves about 1,000 books," says Jean. "We had listed in a union catalog of all books in this building around 4,700 more titles, including those in the various departmental libraries. Reference books specific to the needs of Union Carbide employees had been ordered and were awaiting delivery. Within four months after the opening, the number of visitors had reached 500 per month and was growing. Approximately 250 items were borrowed monthly and 260 reference questions answered. Slowly, but surely, these and other services are going up."

Wisely, Union Carbide's management had allowed for this library growth in its original plans, and now there is no problem as to space for new books or facilities for library-users.

Furniture for the library can be made of wood or steel. Although wood is considered "warmer," good steel furniture is available. This is probably a matter of personal taste. The important considerations are that the table tops do not have highly polished surfaces which reflect light into readers' eyes, and are not so dark in tone that the contrast between paper and books provides a poorly reflected light. Table tops should be resistant to stains and approximately 29 to 30 inches above the floor.

Ordinarily, more work space per reader is required at business library tables than in public libraries. An area of 36 by 60 inches is suggested for every four readers and one of 36 by 78 inches for six readers. The seating heights of chairs should be 18 inches. Chair arms ought to slide under the table easily.

Here are suggested measurements for spacing furniture in the library: *Between reading room tables* — no less than four feet for one chair. When two chairs are back to back, five to six feet is recommended.

Furniture spacing

Between tables and walls — five feet.

Aisles at end of tables — three and one-half to four feet.

In front of circulation desk — six feet.

In front of card catalog — five feet.

In front of files — four feet.

Between files, if facing — six feet.

Between free standing stacks—three feet.

Behind staff desks — four feet.

Between staff desks, if in a horizontal row — two to three feet.

Double-faced stack sections — maximum length six units.

If a library is spacious enough, there are many kinds of functional furniture and equipment, besides tables, chairs, card catalogs, etc., that can be included in it. Some of these are: atlas and dictionary stands, storage and supply cupboards, coat racks, filing stools, bulletin boards, sorting equipment, book display racks, and microfilm readers.

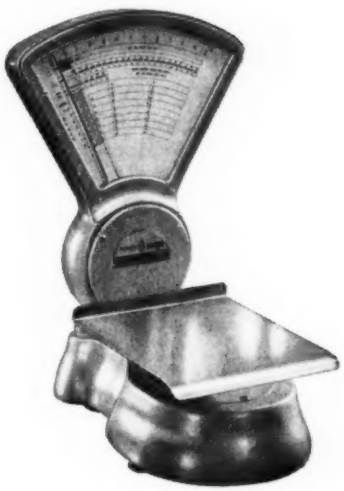
Speaking of microfilm, this is a tool that can be extremely useful if large quantities of company records are to be filed in the library. It provides an economical, space-saving means of storing such records collections. In the event, microfilm is employed in the library, then a microfilm reader must be available for viewing the film. *For more information on microfilm readers, turn to the "Tools of the Office" section in this issue.*

Carpeting is definitely an asset to the business library. It reduces traffic noise, eliminates the scraping sounds of moving chairs, and adds a decorative touch to the area.

Naturally, lighting in the library should be the best available. 100 foot-candles of light is the standard established by the Illuminating Engineering Society for reading, and filing.

Further facts about business library functions and design can be obtained from the Special Libraries Association, 31 East 10 Street, New York 3, our primary source for this article. ■

Is your mail scale an old meany?



Old conventional scales get tough, tired, erratic. They may overweigh, waste postage for you. (Even eight letters a day, with an unneeded extra 4¢ stamp, can lose nearly $100 in a year.) Or they underweigh—and your letters arrive "Postage Due." Which normally does not make the recipients feel kindly to your firm!

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(Circle No. 27 on Reader Inquiry Card)

HOW TO HOLD A CONFERENCE

You don't need a silver tongue to conduct a good meeting—all that's necessary is a basic approach. Do you know the fundamentals? Check yourself . . .

By ROBLEY D. STEVENS
Management Consultant, Washington, D. C.

CONDUCTING business conferences may be old hat to you. But, whether it is or it isn't, you may profit by reviewing some of the basic techniques and traits necessary for holding a successful conference. *You might begin by rating yourself on the questionnaire on the next page.*

Just what are your duties as a conference leader? Obviously, the first thing you should do is get the meeting started. You must clearly state the purpose of the conference to your colleagues and do it in such a way that you will arouse their interest in the problem at hand and motivate them to want to do something about it.

After you have aroused your group sufficiently, tone down the tempo of the session to a deliberated, intelligent discussion of all facets of the problem, such as possible solutions, pitfalls, etc.

As the discussion progresses, you (the leader) should keep its objectives in mind and slant your questions to the phases of the problem which might be overlooked by your conferees. You must help them to analyze the problem, evaluate responses, and generally bring out all the facts. In other words, you must encourage them to investigate all possible solutions and select the most desirable one. Don't forget to summarize the conclusions reached by the group.

You don't have to be a genius or a theatrical type to be a good conference leader. The experts say, however, there are certain desirable traits for the job. For example, you must enjoy working with people and be able to gain their confidence easily. You should be able to express your own thoughts in language all can understand. You should be tactful, courteous, and patient and never offend anyone

attending a conference. You should have a sense of humor, be receptive to suggestions, and be a good listener.

Avoid smoothing your hair, adjusting your tie, cleaning your nails, and other mannerisms which can be irritating or distracting to the conferees.

Invariably, the success of your conference will depend on whether or not you ask the right questions at the right time. After all, the question is the heart of the conference. Lead-off questions can be used to start a discussion on a new topic and follow-up ones to expand the discussion.

If your primary purpose in asking a question is to encourage thinking on the problem, you should generally avoid queries that can be answered with a *yes* or *no*. Avoid vague and ambiguous questions. State your question so there can be no misunderstanding.

There are many visual aids and devices which can help you hold a successful meeting. Charts, graphs, diagrams, film strips, and company records may prove very handy, but they should be factual and provide a bird's-eye view of the subject matter.

You will often find it advantageous to prepare a conference agenda to be handed out at the beginning of the session. It should state the problem, a proposed plan of attack, and a battery of questions which the conferees can answer.

It is also wise to have a stenographic record made of the conference for future reference.

How much data should you collect before you vote on a final solution? Well, this is a matter of good judgment and common sense and depends greatly on the nature of your problem. Once your group has arrived at a solution, though, you should measure its validity by asking yourself:

1. Will this solution produce all the desired results?

2. Does the company have the physical means to put the solution into operation?

3. Is the solution within budget limits?

If you can quickly and sincerely answer "yes" to all three questions, your conference was definitely worth all the effort put into it.

HOW EFFECTIVE WERE YOU AT YOUR LATEST CONFERENCE?

Were You

YES	NO	
☐	☐	Poised and in control
☐	☐	Familiar with the topic
☐	☐	Clearly understood by group
☐	☐	Generally accepted by group
☐	☐	Careful not to over-lecture
☐	☐	Receptive to contributions
☐	☐	Quick to develop important points

Did You

YES	NO	
☐	☐	Start the meeting on time
☐	☐	Show interest in the topic
☐	☐	Talk to the group as a whole
☐	☐	Ask for group opinion on each question
☐	☐	Obtain enthusiastic responses
☐	☐	Offer a logical plan for attacking each problem

Was

YES	NO	
☐	☐	The physical setting well planned
☐	☐	The discussion of each problem summarized
☐	☐	A fair time limit set for speakers
☐	☐	A definite solution reached for each problem

You Scored

To rate yourself as a conference leader, count the number of "yes" answers you checked and give yourself 6 points for each. A total of:

70 - 80 = Fair 80 - 90 = Good
90 - 102 = Excellent

IBM INTRODUCES SIMPLIFIED TOOLING LANGUAGE

First permanent MICR consultation center established

THE ROLE of the computer in factory production was given a tremendous boost by the news that the International Business Machines Corp., in conjunction with United Aircraft, has developed a revolutionary computer program for automatic three-dimensional machine tooling. Called AUTOPROMT (Automatic Programming of Machine Tools), it greatly simplifies the job of translating a blueprint into a program that will tell the computer how to guide the tooling machine it controls.

An engineer inspects the perforated tape containing computer-generated instructions that guided the milling operation of the saddle-shaped aluminum block seen in the right foreground. The surface of the block has been tooled to a hyperbolic paraboloid shape, one of the many machining shapes that can be programmed by IBM's new Autopromt language.

Earlier automated tooling systems have required that the programmer describe each path a cutting tool must take to produce a part, in meticulous detail. Autopromt enables the programmer to describe the surfaces of the part to be tooled, rather than the path to be followed by the tool.

The description can be made in simple, English-like terms. It is then punched on cards which are fed into the computer (IBM 704, 709 or 7090). The computer responds by generating a complete series of detailed numerical instructions covering every operation the tooling machine must perform to shape the part.

There are 110 words in the Autopromt vocabulary and a great deal of latitude for assembling "sentences" and "paragraphs." Using this language, the part-programmer describes each geometric surface of the shape to be machined, defines the relationships of these surfaces to each other, and specifies the machining requirements, such as tolerances and tool size.

For example, the programmer might use the following statement to define a bowl-shaped surface of a part to be machined:

```
BOWL = SPHERE,
       INSIDE/CENTER (0, 0, 0)
       RADIUS (1.75)
```

This statement tells the Autopromt program all it needs to know about the characteristics of the bowl-shaped surface. Other statements describe the relationship of this surface to other surfaces of the part being tooled.

The final stage of the computer run, known as post-processing, edits the tool path information. The post-processor is not an integral part of the Autopromt system, since it must be tailored to meet the requirements of the particular type numerical control tooling equipment being used. Autopromt has been designed to be compatible with various types of post-processing programs.

Tool paths generated by Autopromt are recorded by the computer on magnetic tape. If necessary, this can be converted to perforated tape or other media appropriate for input to a machine director, the device which actually controls the operation of the tooling machine.

Circle N-1 on Reader Service Card

Burroughs' MICR center opened in Chicago

Burroughs Corp. has opened the country's first permanent consultation center in the field of Magnetic Ink Character Recognition (MICR), the "common" electronic language of American, British and Canadian banking. It is located in Chicago.

Bankers from all parts of the country will visit this center to investigate applications of MICR equipment and systems to various financial operations, such as checking, savings, and installment loan accounting.

On display at the center is the Burroughs B251 Visible Record Computer, a four-unit system used in the check-processing operations of banks and other financial firms.

The VRC system includes an

Kodak's $99.50 Verifax Bantam Copier, Model A, makes 5 dry copies from *one* Magic Matrix in a minute.

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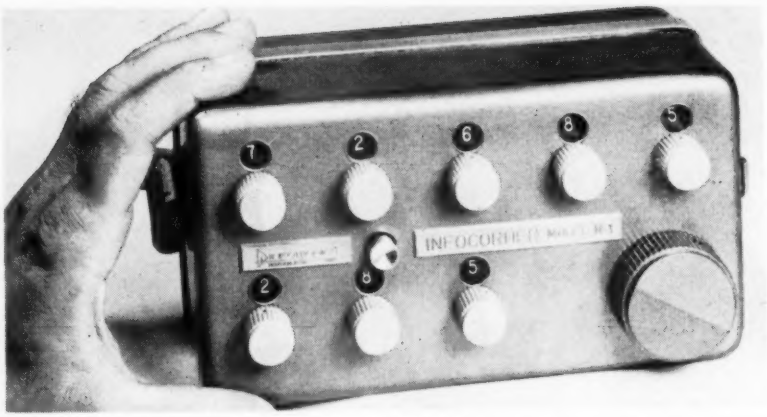
(Circle No. 12 on Reader Inquiry Card)

electronic sorter-reader which reads and sorts checks at speeds up to 1,560 a minute. The MICR number on each check is read in 32 millionths of a second as the checks are moved along at sorting speeds up to 23 miles per hour.

Infotronics announces portable data recorder

A portable digital magnetic tape recorder, called the Infocorder R-1, has been designed by the Infotronics Corp. of Houston. It is capable of recording data emanating from digital computers.



This is the new portable digital magnetic tape recorder developed by Infotronics.

A companion piece to this compact recorder is the Infocorder P-1, a portable playback device that will feed the taped data back into punch card and tape apparatus, computers, and computer magnetic tape units.

The Infocorder devices can be applied to EDP systems where there is a need for collecting quantities of data at numerous remote locations and playing it back at a central headquarters.

Circle N-2 on Reader Service Card

Univac to work for Eastern Air Lines

Eastern Air Lines has selected Charlotte, North Carolina, as the site for its proposed Electronics Reservation Center, which will include two Univac 490 Real-Time computer systems. These systems will be delivered by Remington Rand before the end of the year. They will be used to process advance reservations sent in from any point on the Eastern Air Lines flight network.

EDP revolutionizes bankers' hours

Bankers' hours will never be the same now that EDP has entered the field. According to John Fiske, a vice-president of Bankers Trust in New York City, the big banks are planning work schedules in which all of the bookkeeping, accounting,

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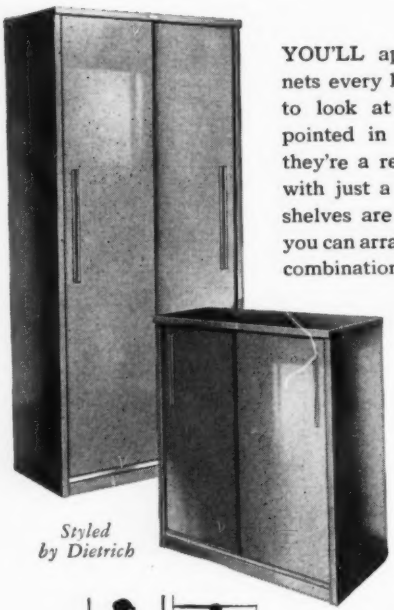

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Circle No. 6 on Reader Inquiry Card)

and analysis necessitated by a single day's operations will be completed that same night by computers running 'round the clock. This is extremely desirable to bank management because it means that each new day will be started with a complete knowledge and analysis of what happened the day before. Without EDP equipment, some of these procedures would not be completed until one or two days later.

To get all this work done before opening time the next morning, the computers will have to be operated a minimum of two shifts a day and possibly as much as 20 out of 24 hours, six days a week.

One problem that will have to be ironed out in this matter is the assignment of late shift vice-presidents, who will be needed to handle the decision-making on the new night shifts. The banks are considering the idea of scheduling them to work either four ten-hour days, with three straight days off, or eight such shifts, with six days off.

Public Service to install six RCA computer systems

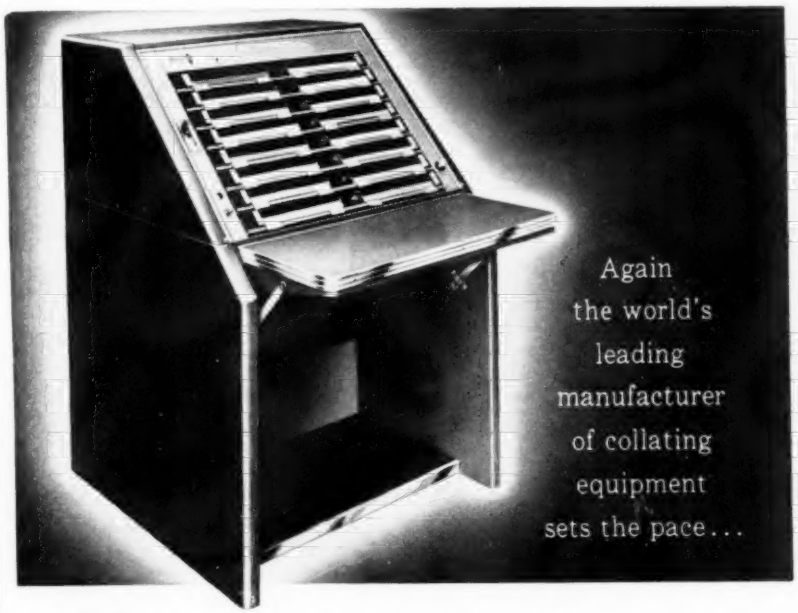
The Public Service Electric and Gas Company of New Jersey has leased one 601 and five 301 RCA computer systems to handle its customer billing, payroll accounting, inventories, depreciation studies, and many research, engineering, and operating functions. The installation of this equipment at the Public Service's Newark office will commence in the fall of 1962.

Public Service will be the first electric and gas utility to use the new RCA all-transistorized 601 system, which has the ability to make 666,667 logical decisions or add up 183,000 eleven-digit figures in one second. It can recall data from its memory equipment in 1.5 millionths of a second.

Atlantic Co. establishes large computer center

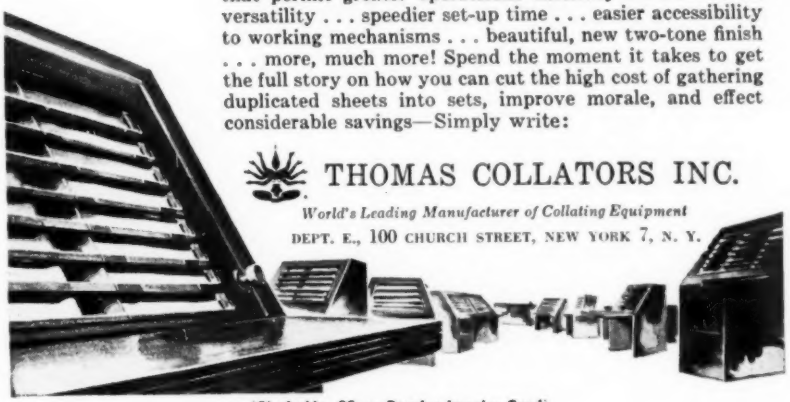
The Atlantic Refining Company has announced the opening of one of the largest computer centers in the east at its Philadelphia refinery. Occupying 5,000 square feet of space at the refinery, the computer center contains IBM 7070, 704 and 1401 data processing systems. It has a raised floor with vinyl panels that can be removed to permit access to the mammoth wiring network required by the computers.

In addition to high-speed data processing of product inventories, payrolls, etc., the new computer center will expedite the scientific calculations necessary to guide Atlantic's management in future decisions on refinery operations, marketing policies, and product development. More extensive evaluations of crude oil will be possible, and by simulating the results of combinations of manufacturing processes, the company hopes to develop improved refinery operations, as well as additional petroleum products. ■



10 New Floor Models for '61

For 1961, Thomas Collators announce engineering and design advancements for their new line of 8, 10, 16, 20 and 32-sheet floor models that help surpass their own outstanding record of achievement. New developments that permit greater operational efficiency . . . increased versatility . . . speedier set-up time . . . easier accessibility to working mechanisms . . . beautiful, new two-tone finish . . . more, much more! Spend the moment it takes to get the full story on how you can cut the high cost of gathering duplicated sheets into sets, improve morale, and effect considerable savings—Simply write:



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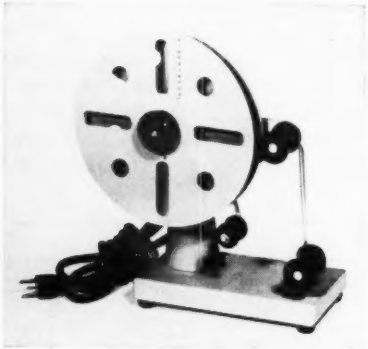
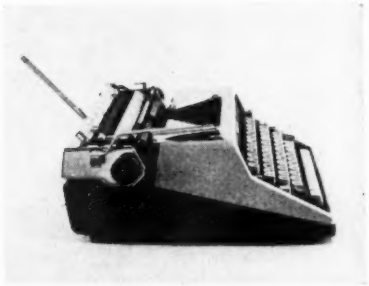


◀ Tape winder

A series of "right side" tape winders, available with 6, 8 or 12-inch diameter reels, has no clutches, belts, interference signal, oscillating arm or interval switches, and requires little power. Whiteford Laboratory, 258 Broad St., Lynn, Mass.

Circle N-3 on Reader Service Card



Portable typewriter ▲

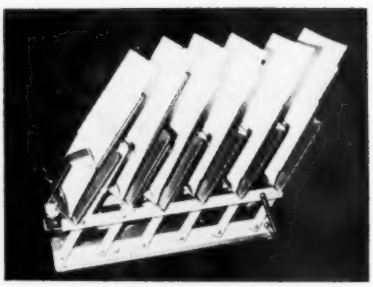
The SM-7 is a 44-key, 88-character typewriter that has many standard office typewriter features including key-set tabulator, touch adjustment, correcting space bar, margin release, and 3-position vertical spacing. Inter-Continental Trading Corp., 90 West St., New York.

Circle N-5 on Reader Service Card

Table-top collator ▶

The Velodex is a 6-stack collator that can be folded. One stroke of the control lever simultaneously raises the top sheet of each stack. Accepts sheets up to 11 inches wide. Atlantic Numbering Machine Co., 47-02 18th Ave., Brooklyn 4, N. Y.

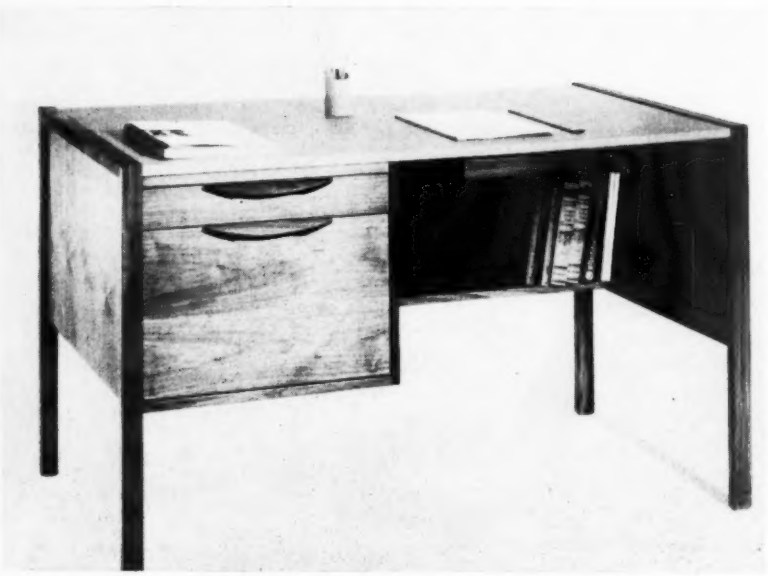
Circle N-4 on Reader Service Card



Post binder ▲

Burst and unburst marginally punched forms are accommodated by a plastic post binder with an all-metal locking device. Available in pressboard covers in 12 colors. Capacity is 6 inches. Acco Products, Ogdensburg, N. Y.

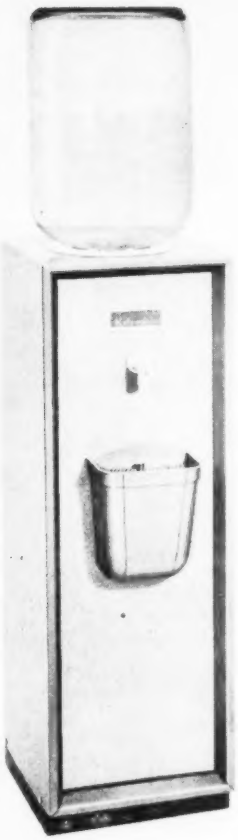
Circle N-6 on Reader Service Card



◀ Small desk

Single pedestal desk is walnut with vinyl top and drop leaf that folds into side panel of desk. Inside bookshelf avoids cluttered top. Jens Rison Design, Inc., 444 Madison Ave., New York 22.

Circle N-7 on Reader Service Card



Water cooler

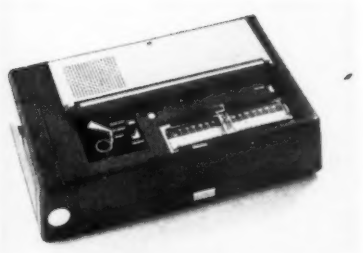
The compact model A1B bottle-type water cooler is 12 inches square and stands 36 inches high (not including bottle). Cabinet is finished in baked enamel gray with contrasting fold hammer frontpanel insert. Kelvinator Water Coolers, 265 N. Hamilton Rd., Columbus 13, Ohio.

Circle N-8 on Reader Service card

Filing cabinets

The 4000 line includes 2, 3, 4 and 5-drawer files in letter and legal sizes. Files feature a full 26½-inch drawer depth inside, positive side-locking compressors, and thumb latches. Yawman & Erbe Mfg. Co., Inc., Rochester, N. Y.

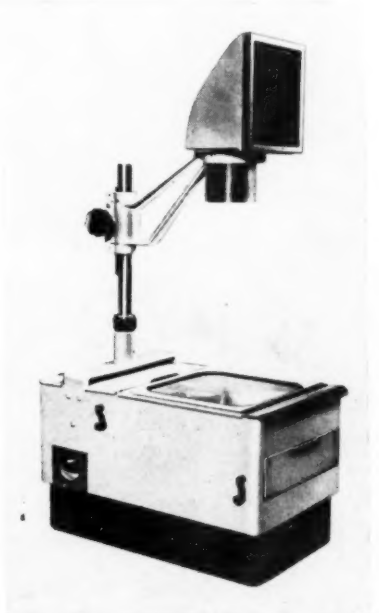
Circle N-9 on Reader Service Card



Portable dictating machine

The Executary transistorized dictating machine weighs 6¼ pounds, and is powered by five flashlight-size "C" batteries. Recording medium is magnetic belt compatible with other Executary machines. The unit may also be used for transcription. Price, $385. International Business Machines Corp., Electric Typewriter Div., 545 Madison Ave., New York 22.

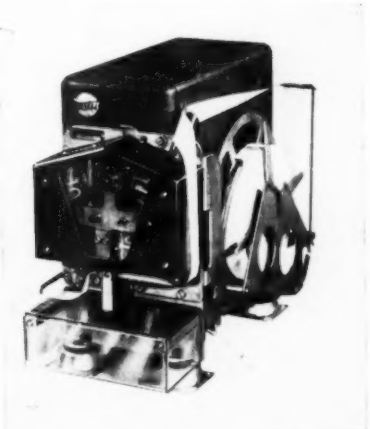
Circle N-10 on Reader Service Card



Overhead projector

The Kool-Lite 6000 weighs 40 pounds and accommodates transparencies up to 10 x 10 inches. Unit will also hold cellophane rolls for projecting notes. Buhl Optical Co., 1009 Beech Ave., Pittsburgh 33.

Circle N-11 on Reader Service Card



High speed tape units

The BRPE tape punch and the CX tape reader operate at 100 characters per second as a complementary pair for use in high-speed, tape-to-tape communications systems. They may also be used as input and output devices for computer and other data communications installations. Teletype Corp., Dept. SP-12, 5555 Touhy Ave., Skokie, Ill.

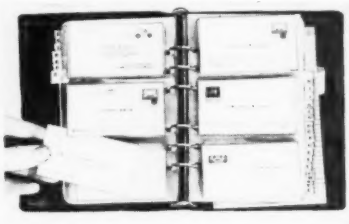
Circle N-12 on Reader Service Card

NEW SYSTEMS, EQUIPMENT AND SUPPLIES

Executive posture chair ▲

Has contour back and torque bar swivel control, one in the "Vike" series of office metal chairs. The chair is constructed of all-welded square steel tubing with a 26-inch base of aluminum, and is available in 75 upholstery colors and fabrics. Riteform Chair Co., Quincy, Ill.

Circle N-13 on Reader Service Card



Plastic card holder ▲

"EZC" plastic card holder system consists of a vinyl six-ring binder and 23 see-through plastic pages for holding business cards or other records. On-Gard Industries, 8817 S. May St., Chicago 20.

Circle N-14 on Reader Service Card

Quick-sealing envelopes ▲

"Flash-Seal" envelopes make use of a new strong-grip adhesive which dries almost instantaneously without heat. Moreover, the envelopes are said not to curl or twist. These properties permit faster, snag-proof feeding through mailing machines. Stein, Hall & Co.; 285 Madison Ave., New York.

Circle N-15 on Reader Service Card

◀ Folding table

A modesty panel 62 x 10½ inches in size is a feature of the multi-purpose folding table. Measuring 24 x 62 x 29 inches high, the table is surfaced and self-edged with teak Parkwood. Howe Folding Furniture, Inc., 1 Park Ave., New York 1.

Circle N-16 on Reader Service Card

◀ Executive desk

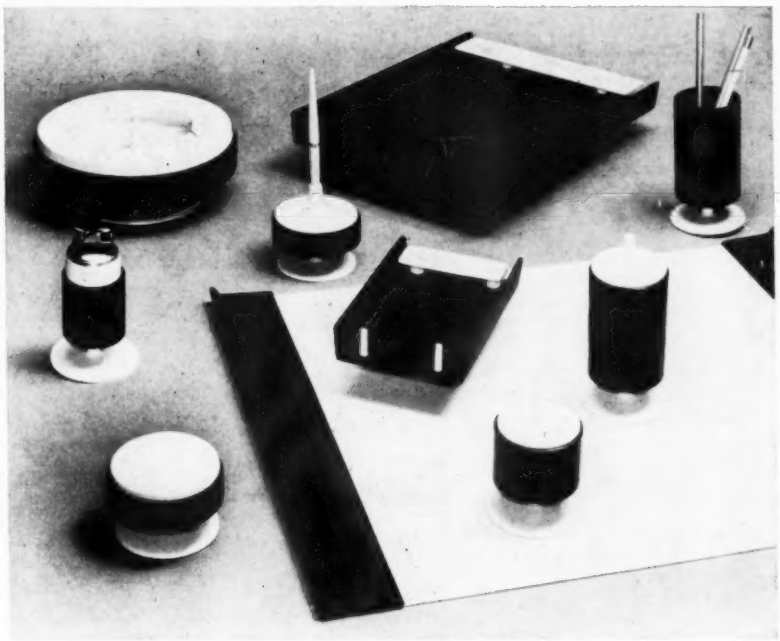
Full, flush walnut wrap-around panels, square-edged tops, wooden pulls, recessed and carved, characterize the new Coronado Dansk group of executive furniture. Executive desk measures 76 by 34 inches; the executive credenza is 72 by 21 inches; a modular secretarial L-shaped unit has a 66 by 33-inch desk and a 54 by 21-inch return. Myrtle Desk Co., High Point, N. C.

Circle N-17 on Reader Service Card

Desk accessories ▶

California walnut and satin glazed white ceramic characterize the MBF Wares "400" line of coordinated desk accessories. Maison Gourmet, Ltd., 1170 Broadway, New York 1.

Circle N-18 on Reader Service Card



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DIXON
Taperaser

Correction tape ▲

"Taperaser" blockout correction tape is a paper-like substance rolled and packaged like cellophane tape, with its underside coated with a white clay and talc mixture. The typist positions a strip of Taperaser over her error, restrikes the error, and then types the correction right over it. The chalk-like mixture adheres to the paper, masking the error. Superimposed over it is the correction. According to the manufacturer, it blends perfectly with the paper and will not smudge. Dixon Crucible Co., Jersey City, N. J.

Circle N-19 on Reader Service Card

Wall brackets ▲

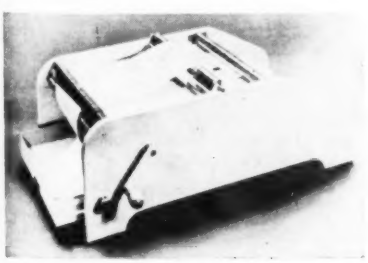
Made of 1-inch, 18-gauge tubular steel, wall brackets are finished in mirror chrome or baked enamel (bronze mist, desert sage, hammered gray, mist green). Bracket 12 inches high retails at $3.45. Precision Mfg. Co., 831 Chicago Ave., Evanston, Ill.

Circle N-20 on Reader Service Card

Photocopier in colors ▲

Model 103 photocopy machine comes in beige, red, white, yellow, and green. Priced at $99.50, it will reproduce anything written, drawn, typed, or printed; copies said to be permanent. It will handle a copy width up to 9 inches by any length. A. B. Dick Co., 5700 W. Touhy Ave., Chicago 48.

Circle N-22 on Reader Service Card

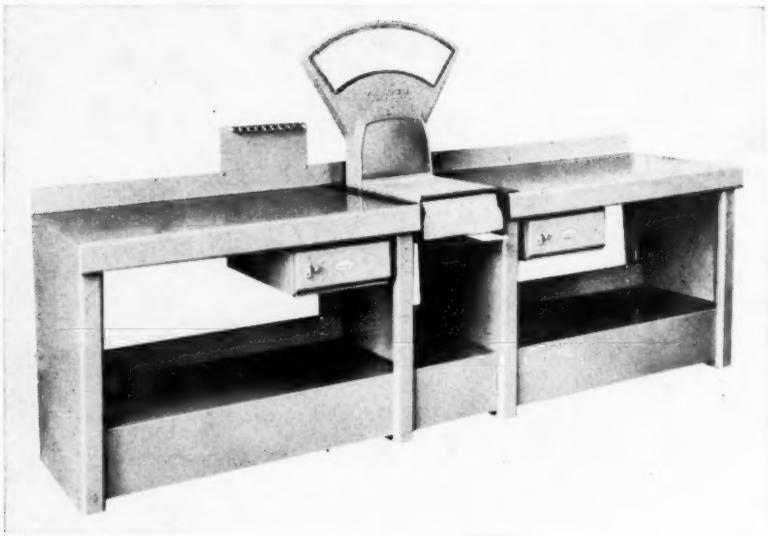


Forms burster ◀

Forms from 3 to 11 inches long in widths up to 15 inches can be burst on the Davis forms burster. The unit eliminates the use of knives, slitters or hammers. Tech Panel Co., Inc., 37 Milford St., Binghamton, N. Y.

Circle N-21 on Reader Service Card

NEW SYSTEMS, EQUIPMENT AND SUPPLIES



Shipping room console ▲

An Imperial automatic parcel post scale, available in capacities of 50 or 70 pounds is flanked by two benches with drawers and a rubber stamp rack. The console is equipped with pilfer-proof drawers; each recessed leg is equipped with two electrical knockout plugs. Triner Scale & Mfg. Co., 2714 W. 21st St., Chicago 8.

Circle N-23 on Reader Service Card

Electrostatic photocopier ▲

Dry, "print-perfect" copies from any original, regardless of color, can be made from the model 33 electrostatic photocopy machine. Routine cost per copy is estimated at four cents. The unit is 15 inches high, 15 inches wide, and 24 inches deep; approximate retail price, $895. Smith-Corona Marchant, Inc., 410 Park Ave., New York 22.

Circle N-24 on Reader Service Card

Desk file ▶

The "Desk Distributor" is 9 inches wide by 11 inches high, and is constructed of heavy galvanized material. Price, $2.95. H. M. Biden Co., 110 E. Hamilton St., Baltimore 2.

Circle N-25 on Reader Service Card

Noise control ▶

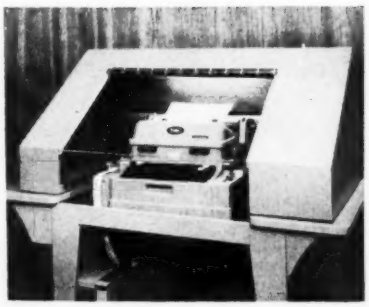
Model IDP-200 Acoustinet is capable of absorbing 50 to 80 per cent of the operating noise of Flexowriters, Justowriters and Computypers. Finished in a Friden tan, Model IDP-200 has a plexiglass window that will not interfere with vision. Edge-card, tape reading, hand feeding and normal typing operations are accomplished without raising the vision shield. A rear door permits tape reels to be changed quickly and easily. Gates Acoustinet, Inc., P.O. Box 2301-M, Buffalo 23.

Circle N-27 on Reader Service Card

Calculator ▲

The model V calculator has a mechanism that automatically selects the fastest arithmetic for any multiplication. Other features include a stepped keyboard and special checking register that insures faultless entry of figures. Price, $675. Diehl Calculating Machines, Inc., 527 Madison Ave., New York 22.

Circle N-26 on Reader Service Card



Automatic collator ▲

Designed to reduce hand collating by as much as 90 per cent, the Model CSS collator is simple to operate and is equipped to handle both 8½ by 11 and 8½ by 14 inch sheets. Up to 12,000 sheets per hour can be handled in a variety of production runs from 5 sets to several thousands. General Binding Corp., Northbrook, Ill.

Circle N-28 on Reader Service Card

Whiteprinter ▲

The Rockette whiteprinter is now available in two models, one with a printing speed of 25 feet per minute, the other with a speed of 35 feet per minute. Paragon-Revolute Div., Charles Bruning Co., Inc., Mount Prospect, Ill.

Circle N-29 on Reader Service Card

Filing with electricity ▶

"Electrofile" can handle thousands of record or data cards and, according to the manufacturer, does away with refiling, which is accomplished electrically. Acme Visible Records, Inc., Crozet, Virginia.

Circle N-31 on Reader Service Card

Record cabinet base ▲

Aristocrat base for Kardex visible record cabinets features removable end panels enabling two or more bases to be joined together. Other features include slide-out posting shelf; heavy duty interior shelf; and aluminum doors. Remington Rand Systems Div. of Sperry Rand Corp., 122 E. 42 St., New York 17.

Circle N-30 on Reader Service Card

Executive chair ▲

The Model 3153 in the new Goodform 300 line has five basic adjustments that fit the chair to the individual. General Fireproofing Co., Youngstown 1, Ohio.

Circle N-32 on Reader Service Card

◀ **Posting tray**

The Porta-Ref portable machine posting tray is designed to house machine posting forms. The tray holds three inches of sheets and may be locked. Wilson Jones Co., 209 S. Jefferson St., Chicago 6.

Circle N-33 on Reader Service Card

EDP tape preparation ▲

The Tapemaker is a punch paper tape machine comprised of a standard manual or electric typewriter, photoelectric encoder, and a paper tape punch. Invac Corp., Natick, Mass.

Circle N-34 on Reader Service Card

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(Circle No. 13 on Reader Inquiry Card)

TWO MILLION DOLLARS a day are being embezzled from U.S. business firm by employees, according to the Fidelity and Deposit Company of Maryland and business control analyst Roy C. Taylor, of Akron, Ohio. Each year, about a million persons succumb to the temptation of stealing from their employers.

Internal dishonesty is a touchy problem for a company to approach. If management is not cautious enough to look out for potential thieves, the organization may very well become part of the embezzlement statistics mentioned above. On the other hand, if management is too suspicious, innocent persons may be offended.

One thing is certain, though. The problem should not be ignored. Below are 20 common "danger signals" that felonious activity may be happening, or is about to happen, in your organization. Unfortunately hindsight is much easier than foresight. Administrators whose firms have suffered embezzlement often look back and realize that one, or more, of these signs was exhibited by the guilty party before any fraud was discovered.

Beware of personnel who:

- Continually borrow small amounts from fellow employees.
- Submit petty cash checks that are undated, postdated, or pastdated.
- Return personal checks for irregular reasons.
- Are visited by bill-collectors or creditors at the office.
- Place unauthorized I.O.U's in petty cash funds.
- Incline towards covering up inefficiencies or falsifying figures.
- Criticize others to divert attention from themselves.
- Reply to any form of investigation with unreasonable explanations.
- Gamble beyond their means.
- Drink excessively and associate with questionable characters.
- Buy or acquire expensive personal items through *business* channels.
- Explain that their high standard of living is possible because of money inherited from an estate.
- Get annoyed at reasonable questioning, but remain calm under severe questioning.
- Refuse to leave custody of records during the day, work overtime regularly, and are the first in and the last out every day.
- Refuse to take vacations and shun promotions.
- Constantly associate with a supplier.
- Have an unusually large bank balance or buy large blocks of securities.
- Brag about exploits and carry large amounts of money.
- Manage extended personal illness, or family illness, without a plan of debt liquidation.
- Rewrite records under guise of neatness.

It would be impossible to indicate all the ways that have been utilized to embezzle, but here is a list of some principal methods. Keep in mind, as you read them, that nearly all of them can be discouraged by a worthwhile system of internal control.

Employees can cheat by:

- Pilfering stamps.
- Stealing merchandise, tools, and other items of equipment.

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THE LETTEREX CORPORATION

Washington 24, D. C.

(a division of Allied Paper Corporation)

(Circle No. 19 on Reader Inquiry Card)

dishonesty should not be ignored

- Removing small amounts from petty cash funds.
- Failing to record sales of merchandise and pocketing the cash.
- Overloading expense accounts by recording false mileage or listing false entertainment.
- Pocketing payments on customers' accounts, while issuing receipts on scraps of paper or in self-designed receipt books.
- Issuing credits for false customer claims or returned goods.
- Carrying employees on payroll beyond actual severance dates.
- Carrying fictitious extra help on payrolls. Increasing rates or hours.
- Shipping merchandise to an employee's or relative's home for disposal.
- Falsifying inventories to cover thefts or delinquencies.
- Diverting traveling money, or other advance expenses, to personal use.
- Obtaining blank checks and forging a signature.
- Selling scrap materials for personal profit.
- Creating credit balances on accounting ledgers and converting them to cash.
- Permitting special prices or privileges to customers for "kickbacks."

Squelching dishonesty

Now that the symptoms and motives of embezzlement have been reviewed, let's get down to the matter of squelching them. It is wise to convince employees that, although you have a high degree of faith in their integrity, you are aware of some of the pranks of the human mind, and not only expect honest and truthful dealings, but through a sensible system of control, will see that honesty *becomes* the best policy!

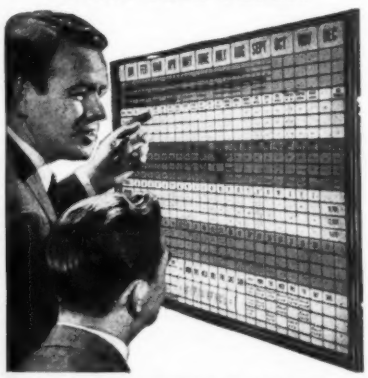
An internal control system brought to a point of efficiency, where it commands the required degree of respect and is operating at a reasonable level of expense, is of major importance to any business.

A good, practical systems man with a knowledge of the ins and outs of fraudulent methods should be able to design plans and procedures to keep the company functioning on an honest level. Once a good system has been designed and is in operation, an auditor can doublecheck its effectiveness by making periodic examinations of the company's financial records.

Your company can well afford to look around and see if its house is in order, correct what is wrong in management's handling of situations, and with deep concern for the employee's position, expect him to show the accepted degree of honesty and fair dealing through mutual understanding of the problems involved. Recent headlines have shown the need to do this. Like any disaster, embezzlement can happen anywhere, any time.

— Office Administration Service
Dartnell Corporation
Chicago, Illinois

How To Get Things Done Better And Faster



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(Circle No. 15 on Reader Inquiry Card)

AM YOURS FOR THE ASKING

Simplified invoicing **C-1**

Ozalid Division of General Aniline & Film Corp., Johnson City, N. Y. A 12-page illustrated booklet, "From Order to Invoice . . . Written Just Once," underlines the labor costs resulting from extensive handling and re-writing of orders. Simplified order writing, filing, shipping, and invoicing with multiple-part forms, single-order forms and single-order forms with multiple-stock locations are discussed. Uses of color-coded copies are suggested. Application information shows how copying errors can be prevented, non-productive clerical time cut, same-day billing installed, order invoice re-writing eliminated, and cleaner, more readable copies provided.

Web offset printing **C-2**

Oxford Paper Co., 230 Park Ave., New York 17. What are the advantages and problems of web offset printing? Both aspects are given in a 40-page manual, "Paper and Web Offset Printing." One of the 11 sections of the manual explains the web offset process.

Two new chairs **C-3**

Styles Seating Co., Delanco, N. J. An illustrated catalog covers the company's line of office chairs. Featured are two new models, "Stack 'N' Gang" and the high model posture chairs. The eight-page brochure also describes the seven Stylex series of contemporary chairs.

Movable partitions **C-4**

Haskelite Manufacturing Division, Evans Products Co., Grand Rapids, Mich. A four-color, illustrated brochure describes the firm's Exec-Units movable office partitions. The brochure details the specifications of the ten Exec-Units basic styles.

● **C-5**

Marney Sales Div., Rockaway Metal Products Corp., 41 E. 42 St., N. Y. An eight-page brochure gives specifications and detail drawings for the company's line of 2⅜-inch and 3-inch movable partitions. Also included is a list price schedule.

● **C-6**

Workwall Div. of L. A. Darling Co., Bronson, Mich. Brochure 500 describes "Movable Walls That Work" and gives important construction features. Partition finishes are depicted along with simple locking device.

● **C-7**

New Castle Products, Inc., New Castle, Ind. The Soundmaster 240, a steel-lined folding partition that silences 41.8 decibels of sound, is the subject of an illustrated brochure. Specifications and construction features are given, as well as the results of sound transmission tests.

Pneumatic tubes **C-8**

Lamson Corp., Syracuse 1, N. Y. "Lamson Airtubes" are featured in a 40-page, illustrated booklet that defines pneumatic systems and discusses the benefits of such systems. Automatic airtubes and semi-automatic airtubes are discussed; a special section is devoted to technical data.

Speedy data transmission **C-9**

Digitronics Corp., Albertson, N. Y. An illustrated brochure describes the "Dial-o-Verter" system of sending or receiving data at high speeds to and from any remote location via the regular telephone network or over private lines. There are photographs of a magnetic tape terminal and a paper tape terminal, since the Dial-o-Verter can transmit in one medium (paper tape, punched cards, or magnetic tapes) and receive in another medium. The brochure lists all the components of the system.

Film splicers and mounters **C-10**

Prestoseal Mfg. Co., 37-27 33rd St., Long Island City 1, N. Y. A 12-page brochure gives a complete description of the company's film splicer and aperture mounters.

Storage equipment **C-11**

Penco Div., Alan Wood Steel Co., Oaks, Pa. "Twelve Losses Penco Planning Can Control" is the title of a 16-page booklet on steel storage equipment such as steel shelving, lockers, cabinets, service counters, and bins.

Shelf files **C-12**

Visi-Shelf Files, Inc., 105 Chambers St., New York 7. A catalog shows a new series of shelf units. Designated the "D," "O," and "E" series, the units are available in two widths, 30 and 36 inches, and in four heights (with seven to ten openings), providing 96 different styles and filing combinations.

Business forms **C-13**

Watts Business Forms Div., Alfred Allen Watts Co., Inc., Clifton, N. J. "Business Forms As A Management Tool" is a booklet documenting 14 case histories in which savings are made through improved design, function, and control of business forms.

● **C-14**

Moore Business Forms, Inc., Niagara Falls, N. Y. "Five Ideas That Protect Your Profits" is an illustrated booklet depicting various business forms and ideas by which the smaller business can keep records with a minimum of time, effort, and cost.

Photographic supplies **C-15**

Anken Chemical and Film Corp., Newton, N. J. A new 24-page catalog depicts the firm's photographic films, papers, emulsions, processors, and chemicals. The booklet also gives "Darkroom Tips" and a comparison chart on 30 contact and projection papers.

Labeler **C-16**

Cheshire, Inc., 1644 N. Honors St., Chicago 22. A booklet describes how the company's rotary head Model E machine applies address labels to post cards, envelopes, pamphlets, brochures, and quarterfold tabloids, at controllable speeds of 4,500 to 16,000 per hour.

Punch card tray **C-17**

The Wright Line, 160 Gold Star Blvd., Worcester 6, Mass. The Unitray system of handling punched cards is explained in a four-page brochure.

Data retrieval **C-18**

Rese Engineering, Inc., A and Courtland Sts., Philadelphia 20. A detailed booklet describes the Findafact 2510 data retrieval system that transcribes standard punch card data to magnetic tape, retrieves the information on request, and maintains the magnetic tape files. A photographic flow diagram illustrates the three basic operating modes: tape file generation, data retrieval, and tape file maintenance.

Visual aids **C-19**

Sales Service Div., Eastman Kodak Co., Rochester 4, N. Y. Methods of lifting visual aids out of the illustrated lecture category into the class of effective visual presentation are given in a booklet entitled "Widescreen Multiple-screen Showmanship." (S-28). Combinations of art work, photography, and text material are discussed.

AM Also worth writing for

Principals of Economics

"What Every Supervisor Should Know About The Principles of Economics" is a 39-page, illustrated book that describes the function of the corporation, the economic nature of man, the role of the customer as the final arbiter of corporate policy, the necessity of company-wide understanding of the reasons behind policy and job security. Price, $1.25. The American Economic Foundation, 51 E. 42nd St., New York 17.

Business in Switzerland

"How to Get Your Business Started in Switzerland" is a booklet of helpful hints and alluring bits of information on setting up your business in that country. Written with the help of the American Consulate General, the booklet emphasizes some differences in U.S. and Swiss protocol. Available without charge from Ruegg-Naegeli, Banhofstr. 22, Zurich, Switzerland.

Company profit and job security

The relationship between company profit and the job security a firm offers its employees is clearly drawn in a well-illustrated, 12-page booklet entitled, "A Tale of Four Companies." The booklet points out that a profitable company is able to take advantage of profit-making opportunities. Price, one copy, $.35; quantity prices available. Enterprise Publications, 20 N. Wacker Drive, Chicago 6, Ill.

Office construction in Manhattan

Over 20 million square feet of space is being built or planned for construction in Manhattan before the end of 1963. You will find vital specifications (address, name of property, size, analysis of interior areas, name of owner and architect, space loss, price range, lease terms, transportation availability, etc.) of 25 buildings now in construction in the 1961-62 edition of "New Office Buildings, New York City." A capsule recommendation accompanies each building appraisal. Available without charge from Julien J. Studley, Inc., 342 Madison Ave., New York 17.

Records retention

"Retention and Preservation of Records: With Destruction Schedules" is a 46-page booklet, now in a sixth edition, prepared by Record Controls, Inc. The booklet is divided into four parts: Organizing a Records Retention Program; Federal Laws and Regulations Affecting Retention; State Laws That Affect Retention; Tabulation of Over 300 Common Papers Found in a Normal Business Office. Price, $5. Record Controls, Inc., 209 S. La Salle St., Chicago 4.

Accident prevention

"Hazard Hunting" is a cleverly illustrated booklet designed to cut absentee rates by encouraging off-the-job safety. National Safety Council, 425 N. Michigan Ave., Chicago 11.

AM ADVERTISERS' INDEX

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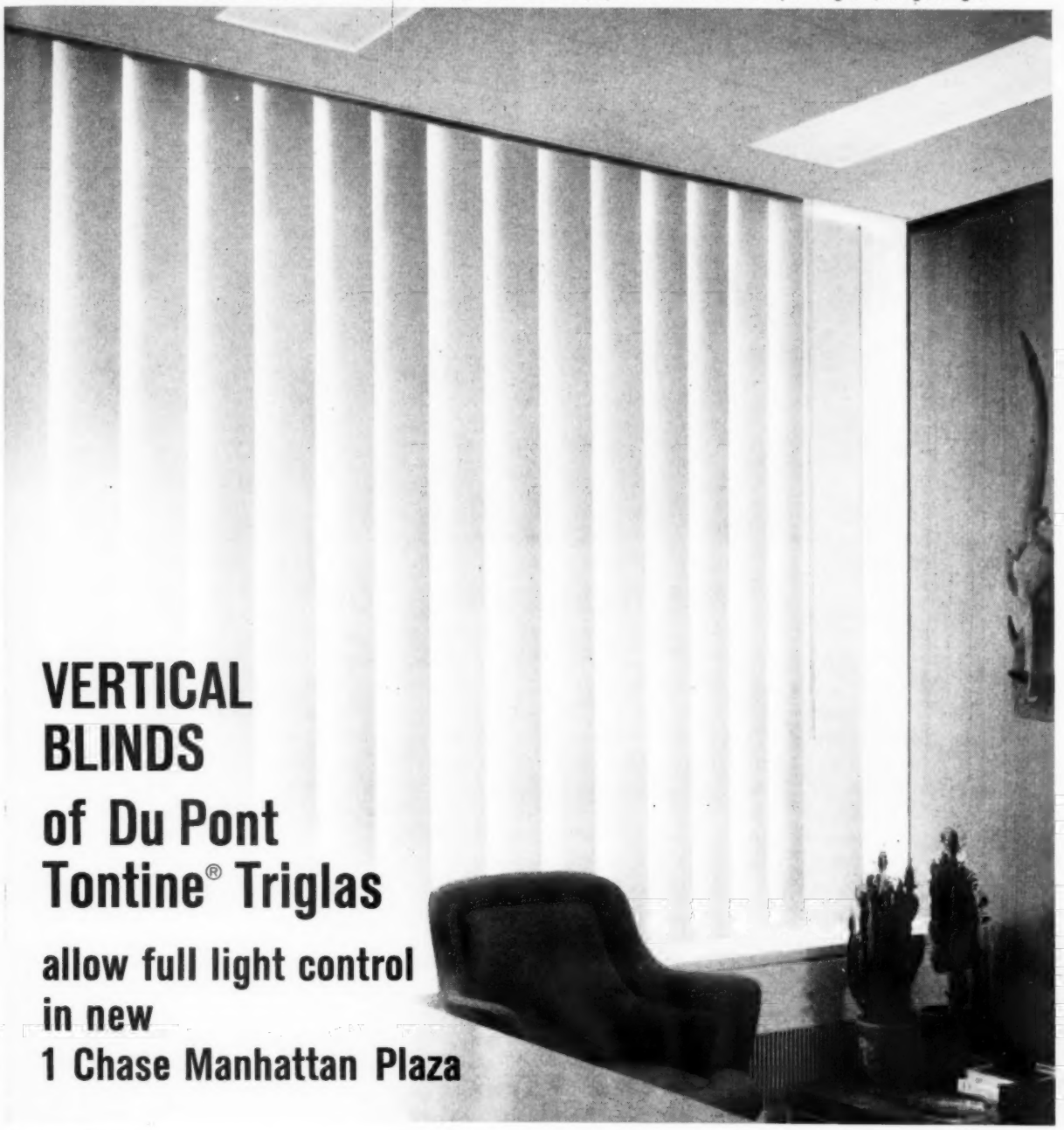
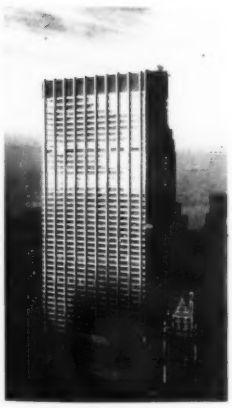
Key		Page
	A	
1	**Acco Products Div. of Natser Corp.** Agency—Geer, DuBois & Co., Inc.	21
2	**Acme Visible Records, Inc.** Agency—Cargill, Wilson & Acree, Inc.	56
—	**Administrative Management**	26
3	**Allied/Egry Business Systems** Agency—Willis/Case/Harwood, Inc.	4
—	**American Telephone & Telegraph Co., Business Equipment Sales—General** Agency—N. W. Ayer & Son, Inc.	3
4	**American Type Founders, Inc., Business Equipment Div.** Agency—Douglas Turner, Inc.	11
	B	
5	**Bassick Co., The** Agency—Chirurg & Cairns, Inc.	59
—	**Bell Telephone System** Agency—N. W. Ayer & Son, Inc.	3
6	**Borroughs Mfg. Co.** Agency—Roland G. Spedden Adv. Agency	66
7	**Bruning Co., Inc., Charles** Agency—Buchen Advertising, Inc.	9
8	**Burton Mount Corp.** Agency—Newmark, Posner & Mitchell, Inc.	47
	D	
9	**Davidson Corp.** Agency—Hazard Adv. Co., Inc.	44
10	**Du Pont de Nemours & Co., Inc., E. I. (Fabrics Div.)** Agency—Batten, Barton, Durstine & Osborn, Inc.	22, 23
36	**Du Pont de Nemours & Co., Inc., E. I., (Fabrics Div., Tontine Triglas)** Agency—Batten, Barton, Durstine & Osborn, Inc.	73
	E	
11	**Eastman Kodak Co., Graphic Reproduction (Ektalith Materials)** Agency—J. Walter Thompson Co.	51
12	**Eastman Kodak Co., Business Photo Methods (Verifax Equipment & Supplies)** Agency—J. Walter Thompson Co.	65
13	**Employers Overload Co.** Agency—Art Gruber Associates	74
	F	
14	**Friden, Inc.** Agency—Richard N. Meltzer Adv., Inc.	17
	G	
15	**General Pencil Co.** Agency—Maxwell Sackheim-Franklin Bruck, Inc.	75
16	**Graphic Systems** Agency—Caswell Adv. Agency	75
	H	
17	**Hamilton Cosco, Inc.** Agency—Caldwell, Larkin & Sidener-Van Riper, Inc.	60
	I	
18	**Infotronics Corp.** Agency—Robinson-Gerrard-McGary, Inc.	8
	L	
19	**Letterex Corp., The** Agency—Ernest S. Johnston Agency	74
	M	
20	**Management Control Charts Co.** Agency—Stern, Walters & Simmons, Inc.	46
21	**Michael Lith Sales Corp.**	56
22	**Minnesota Mining & Mfg. Co., (Thermo-Fax)** Agency—Erwin, Wasey, Ruthrauff & Ryan, Inc.	27, 28, 29
23	**Moore Business Forms, Inc.** Agency—N. W. Ayer & Son, Inc.	7
24	**Myrtle Desk Co.** Agency—Lavidge, Davis & Newman, Inc.	58
	N	
25	**National Cash Register Co., The (Business Machines)** Agency—McCann-Erickson, Inc.	12
26	**National Cash Register Co., The (NCR Paper)** Agency—McCann-Erickson, Inc.	4th Cover
	P	
27	**Pitney-Bowes, Inc.** Agency—L. E. McGivena & Co., Inc.	61
	Q	
28	**Quality Park Envelope Co.** Agency—Craddick Adv.	46
	S	
29	**Superior Tabbies** Agency—Harry M. Sturges & Assoc.	45
	T	
30	**Tab Products Co.** Agency—H. M. Leete & Co.	10
31	**Teletype Corp.** Agency—Marsteller, Rickard, Gebhardt & Reed, Inc.	3rd Cover
32	**Thomas Collators, Inc.** Agency—Douglas Turner, Inc.	67
	U	
33	**Universal Shredder Co.** Agency—Campbell-Williams-Stark Adv.	47
	X	
34	**Xerox Corp.** Agency—Hutchins Adv. Co., Inc.	2nd Cover
	Y	
35	**Yawman & Erbe Mfg. Co., Inc.** Agency—The Rumrill Co., Inc.	57

Executive office in the new 60-story Chase Manhattan Bank Building furnished with opaque vertical louver blinds providing soft, non-glare light.



VERTICAL BLINDS of Du Pont Tontine® Triglas

allow full light control in new 1 Chase Manhattan Plaza



Modern throughout, 1 Chase Manhattan Plaza has vertical louvered blinds in every one of its 8,800 windows. "Tontine" Triglas* vinyl-coated woven glass fabric gives offices a smart new look. Blinds are neat . . . easy to clean . . . rotate to permit light desired and slide like a drapery to either side of window. They're dimensionally stable . . . resist curling, twisting, bowing or distortion. Long-lasting matte white finish reflects solar heat . . . helps keep rooms cool. Blinds fit windows of any size. Du Pont makes fabrics used . . . does not manufacture the blinds. Send coupon for free swatches of "Tontine" Triglas.

*Reg. U. S. Pat. Off. #2,956,917

DU PONT

Tontine® Triglas

Washable Window Shade Cloth

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E. I. du Pont de Nemours & Co. (Inc.)
Fabrics Division AM-1-8
Wilmington 98, Delaware

Please send swatches of "Tontine" Triglas vertical louver woven glass fabric and names of manufacturers of vertical louvered blinds.

Name_____

Position_____

Company_____

Address_____

City_____ Zone_____

State_____

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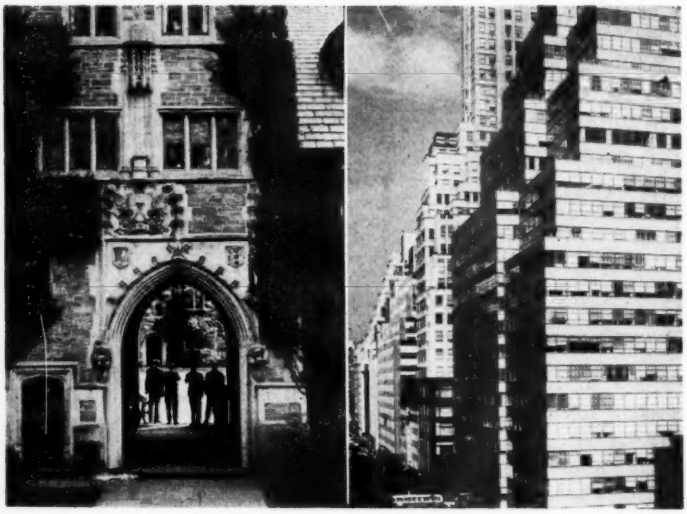


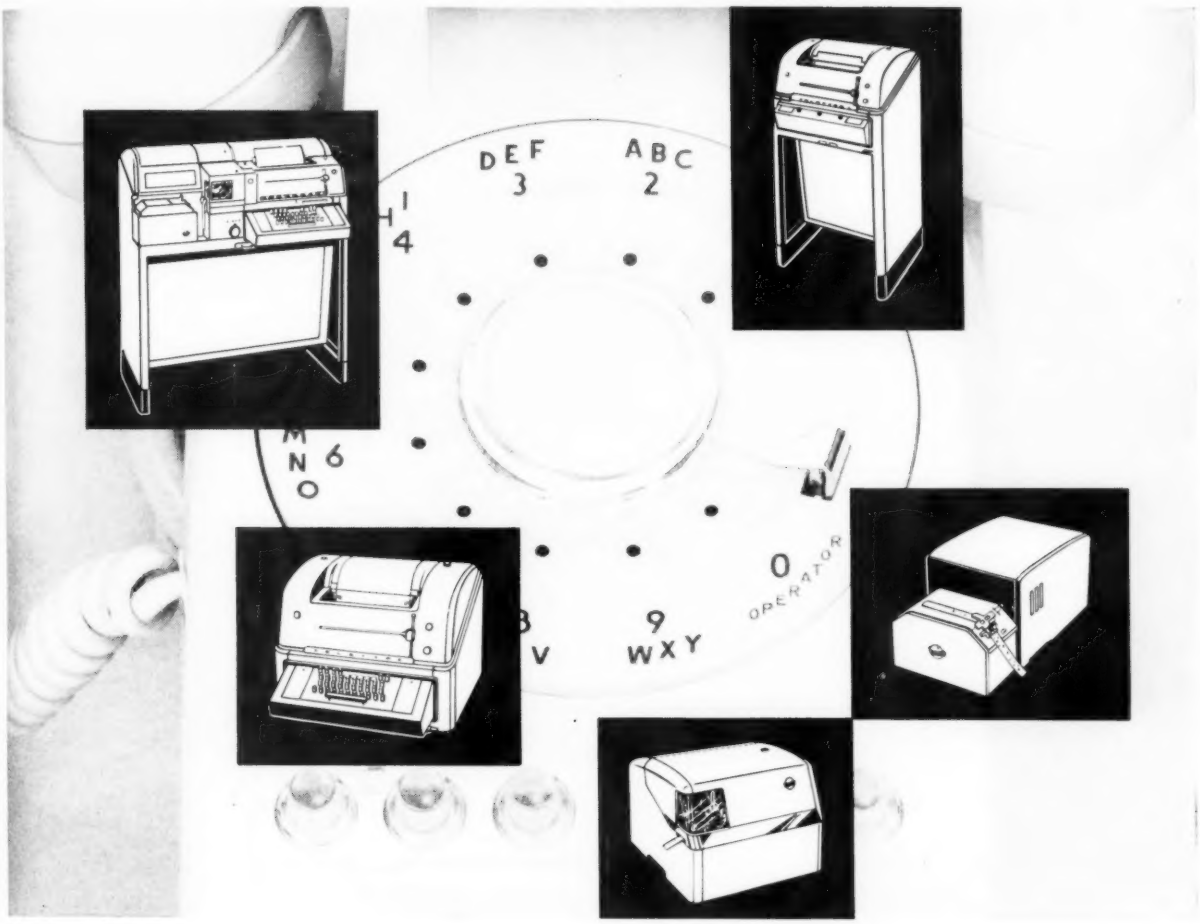
MATTERS OF LOGIC

IN A RECENT POLL, members of an association of electronic computer users were asked what they felt was the most serious weakness among today's crop of computer trainees. Their most frequent answer: that trainees suffer from a glaring inability to "think things through." Though business-oriented college graduates for the most part, the trainees simply could not "think logically" to the degree demanded by modern business methods and machines. Somewhere, apparently, in the long and costly years of their schooling, this vital function of the intellect was either neglected, or at best left half-developed.

This is a serious charge to level against our schools and colleges—but the complaint of the computer users is symptomatic (if different in kind and degree) of complaints heard frequently in all sectors of management about the generally poor level of skills and competence possessed by the present-day graduate, let loose from his "training" ground to sell his services, at no small price, to business.

Granting, of course, the obvious exceptions to this, granting also the merits of the argument that the proper role of education is not merely to train people to fill jobs but to mold them into free, well-rounded individuals capable of further intelligent development by themselves—granting this and even narrowing our focus to the special case of the business school and its relation to management, what do we find?

We find—again with exceptions—graduate typists, and plenty of them, incapable of producing really professional correspondence, typists, who, in effect, are continuing their training on their bosses' time. We find a multitude of stenographers and secretaries whose spelling is notorious. We see what appears to be a whole generation to whom penmanship is but an antediluvian relic. We turn to the business-school faculty and wonder how many instructors could earn a living using the skills they profess to teach. Finally we turn to Management itself and see that it, too, is not entirely blameless. Management could, if it wanted, directly influence the standards of quality to which business schools adhere; it is the ultimate consumer of their "product." No real, no thorough improvement in this situation will occur until Management firmly and clearly defines what it wants and informs its allies in Education that nothing less will do. And no one would be more grateful for this than the reputable business schools themselves, anxious to serve in the best traditions of their calling. In essence, these are matters of logic, too.



Teletype equipment in Data-Phone service

All Teletype sending and receiving equipment—page printers, tape punches and tape readers—can be used in Data-Phone service, the new Bell System method of data transmission via regular telephone lines.

Data can be speeded over local or long distance lines—to a single destination or to several destinations simultaneously. The data can be received on plain message paper . . . punched paper tape . . . or marginally perforated business forms of almost any size. And always there is a "home record" of what is sent.

Significant paper work simplification and time savings can be achieved in handling accounting and billing information, inventories, payrolls, invoices, sales orders, ticket pick-up and numerous other kinds of business detail. If desired, punched tape can be obtained as a by-product of both sending and receiving operations, for later use with business machines.

A growing number of firms are already using Teletype equipment over Data-Phone circuits. For example, companies that purchase large quantities of airline space place orders by phone, then receive tickets on Teletype printers right in their own offices. With this method, tickets are received faster, messenger service is eliminated, and records for accounting purposes are automatically provided.

Teletype Corporation manufactures page printers and tape units such as the Model 28 equipment illustrated above for the Bell System and others who require the utmost reliability from their data communications facilities.

If you would like to investigate the advantages of Teletype equipment for your business, write to Teletype Corporation, Dept. 36-H, 5555 Touhy Avenue, Skokie, Illinois.

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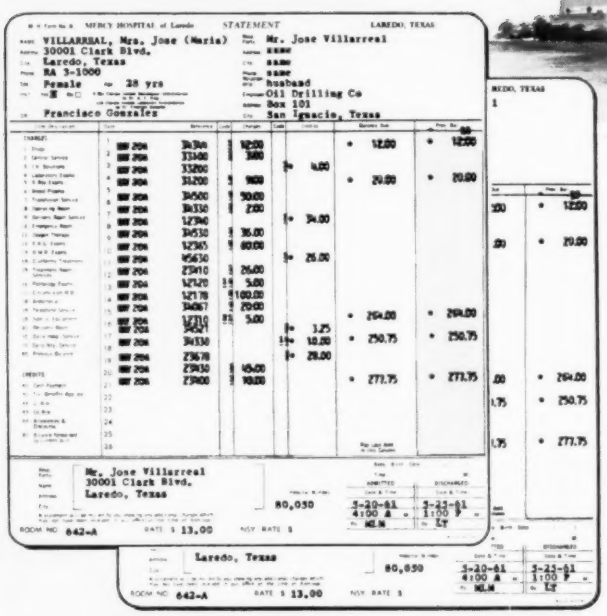

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